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The American Perfumer & Essential Oil Review

January, 1948

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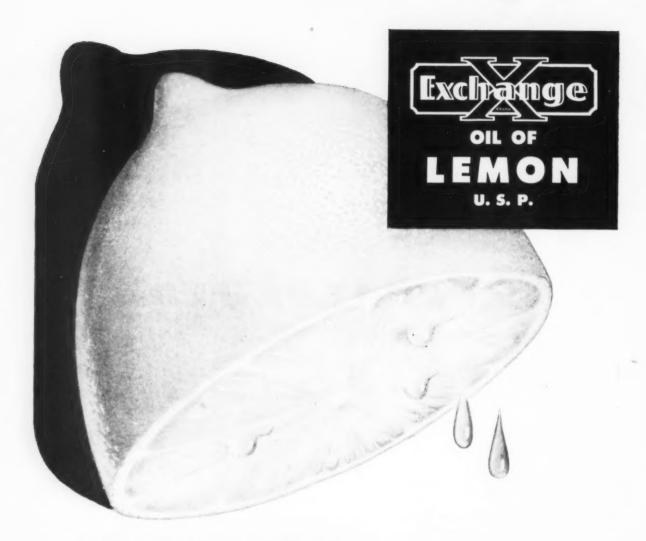
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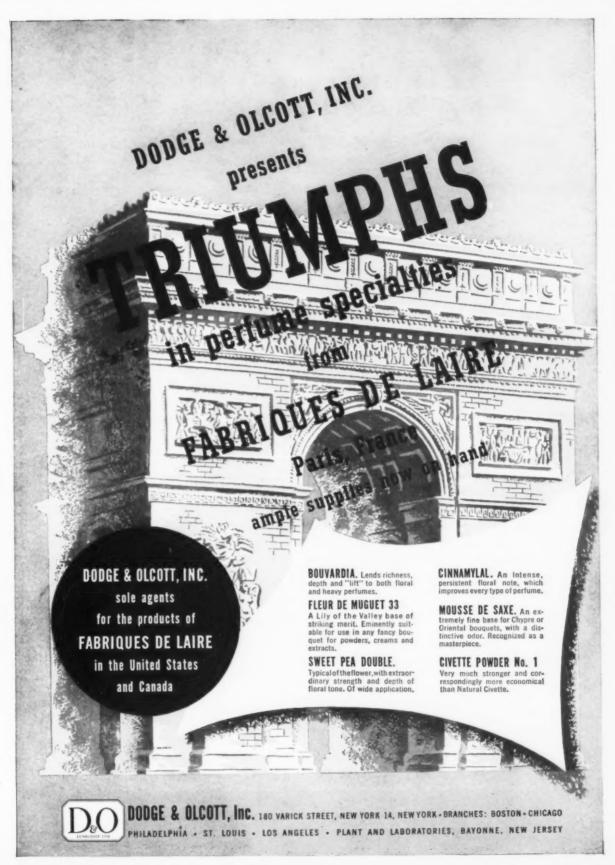
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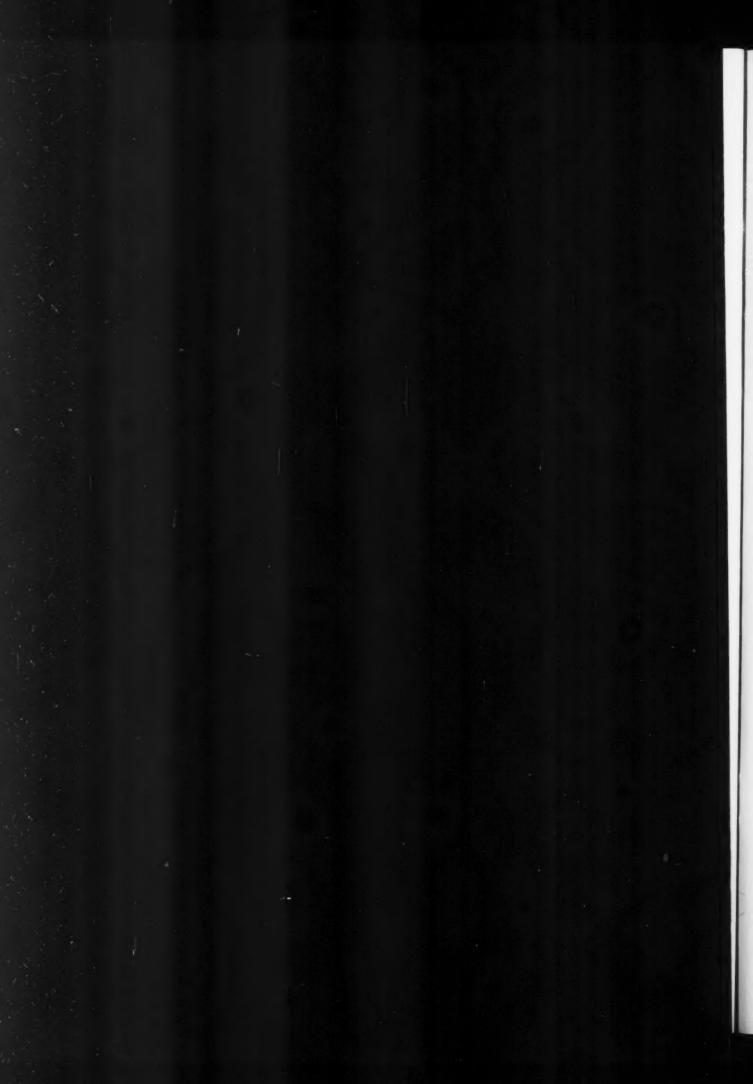
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8 January, 1948

The American Perfumer





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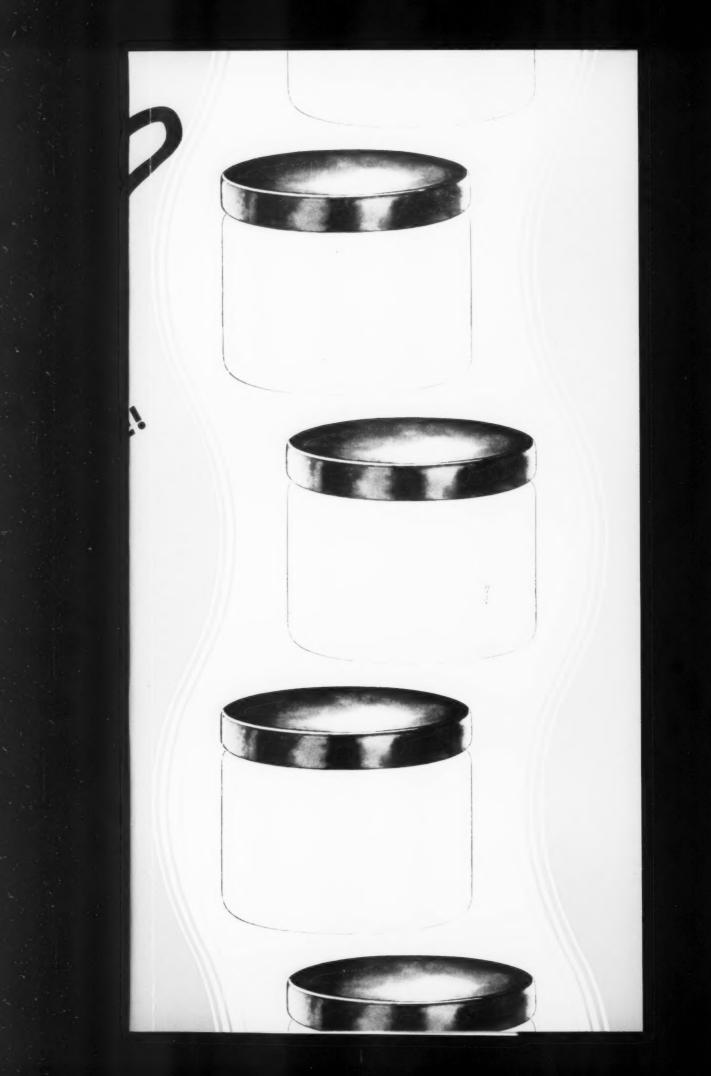
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objectives and perspectives

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These, in brief, are the objectives and perspectives to which we tenaciously adhere. And, we harbor the notion that your ship will come in provided you engage . . . the right skipper.

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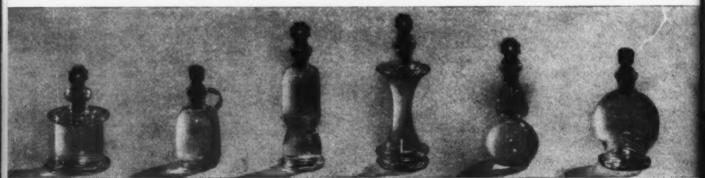
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The slightly higher price paid by the many satisfied users of Ammonium Thioglycollate by Summit is regarded as a very modest premium for assuring the quality of their cold wave solutions.

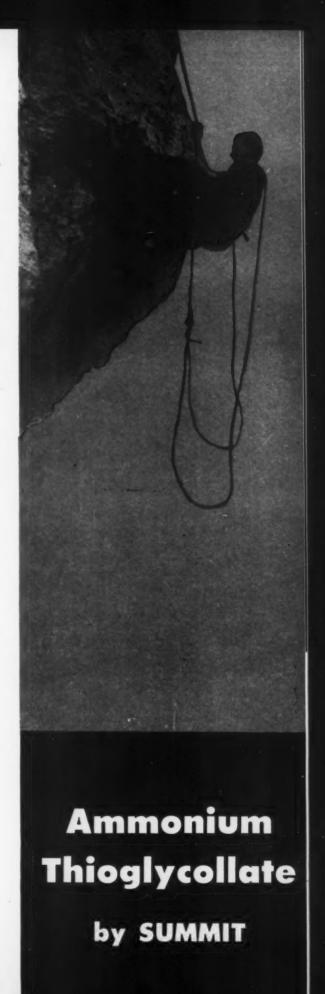
Ammonium Thioglycollate by Summit is supplied exclusively in concentrated form. Summit does not supply ready-to-use solutions, either in bulk or otherwise.

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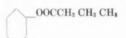
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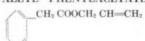
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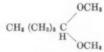


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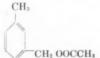
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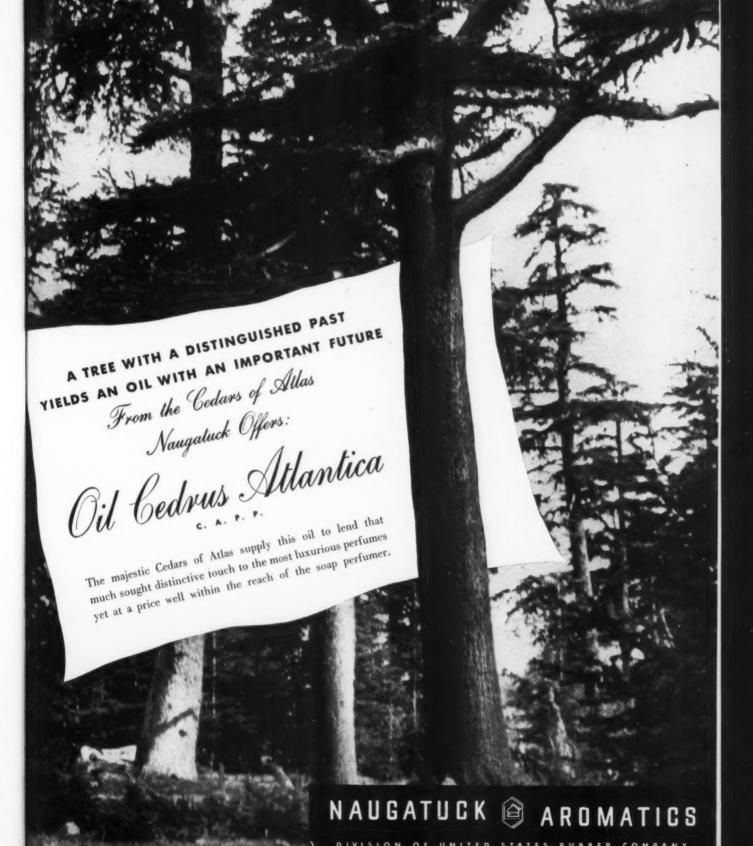
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Editorial Comment

Odor Through **Heat Radiation**

An entirely new theory of the sense of smell has been presented by Dr. Lloyd H. Beck and Dr. Walter R. Miles of Yale University, appearing at a recent meeting of the National Academy of Science.

According to this new theory, the sense of smell is activated by absorption and reflection of radiated heat by the chemicals known as aromatic.

Expensive tests were carried out on cockroaches, using oil of cloves as the odor source. When the vapor was pulsed through an air-tight chamber, so that no trace of odor could enter the chamber containing the cockroaches. 24 per cent showed sensatory reaction. When the oil of cloves vapor was introduced into the chamber containing the cockroaches. 26 per cent showed a reaction.

In their study Drs. Beck and Miles discovered that the vapors capable of producing odor have the ability of absorbing infra-red bands with wavelengths between 71/2 and 14 microns in length. More work remains to be done in this field. It may lead to smell spectroscopy.

Senator Aiken Recommends Removal of Excise Tax

Senator Aiken, head of the Senate Expenditures Committee, which makes recommendations to the Senate Finance Committee, has indicated that he is in favor of the removal of excise taxes on cosmetics and perfumes.

Essential Oil Association Adopts Additional Standards

In its last meeting of the year 1947, the Essential Oil Association of the U.S.A., following a luncheon at the Hotel McAlpin, New York, N. Y., adopted standards and specifications for citronella oil-Java type, citronella oil-Cevlon type, oil of ginger, capaiba oil, citral pure, geranyl acetate, cintronellol and geraniol.

This system of setting up standards for raw materials used in perfumery. in much the same way the Toilet Goods Association is establishing standards for raw materials used in the toilet goods industry, is entirely logical and merits expansion.

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Besiderata by MAISON G. DENAVARRE

ETHYLENE GLYCOL

It is amazing to say the least, that any informed chemist in the cosmetic industry should consider including in his formula either ethylene or diethylene glycol when their high toxicity has been established. Yet it has occurred twice within the span of one week that such a thought was in the minds of two people.

Not only the above glycols as such, but their fatty acid esters are not used by informed chemists for application to the skin surface. Propylene glycol and its esters are considered safe in any proportion at this time. The monoethyl ether of diethylene glycol should not be used in cosmetics to be applied to the skin for any length of time in a concentration exceeding 5 per cent.

UNESCO & FOREIGN BOOKS

United Nations Educational Scientific and Cultural Organization is working on a plan to issue coupons, redeemable in any country, much like the International Postal Coupons, for the purpose of buying books by libraries, institutions and scholars throughout the world. Coupons in four denominations are envisaged, according to the UNESCO Bulletin for Libraries. For more information write UNESCO at 19 Avenue Klébar, Paris 16, France.

PROPYLENE GLYCOL DIPROPIONATE

Bereston writing in the *J. Invest.* Dermat., **8**, 227, 1947, finds propylene glycol dipropionate as an excellent fungicide for skin diseases. A preyious problem on food preservation has shown this chemical to be effective as a preservative, yet safe. The reason why it works is too com-

plicated to describe here, but the fact remains it does kill fungi. It is a potential new preservative, all the more interesting because propylene glycol and propionic acid independently are pretty good preservatives.

PLANT PROJECT CONFERENCE

For several years now, the California Polytechnic School at San Louis Obispo has held an annual conference on subjects dealing with essential oils, drug plants or tannins. In other words, agricultural products that might be turned into crops for California. This year the conference was held on December 2 and 3 under the direction of Monroe C. Kidder. Nine out of 24 papers were on essential oils or kindred subjects. This is a wonderful thing in any state. More power to this and other similar projects.

FILM APPLICATOR FOR MAKE-UP

One of the problems in color matching of make-up cosmetics is the difficulty of comparing films of the same uniform thickness. A little gadget is now available that will spread films from 2 to 6 inches wide in a thickness of 0.0005, 0.003, 0.0015 and 0.006 inches thick. The spreader is under \$25 for standardized units, but special units cost very little more. Coupled with Edman's method of color control for cosmetic powders. (Proc. Scientific Sec. T.G.A. Dec. 4, 1947) this unit can become very useful.

SODIUM PALCONATE

Sodium palconate is the name given a spray dried caustic extract of Redwood bar dust. Its main interest to this industry at the moment is to



M. G. DeNavarre at work in his laboratory

remove metal salts from solution, particularly zinc and aluminum but not magnesium. This might be a valuable analytical reagent to effect separation of these three metals so often found together in cosmetics. Because it lowers surface tension and is also somewhat antiseptic, it offers further consideration as an analytical reagent. The chemical is the sodium salt of a complex organic acid.

NEW SOAP

Writing in the Arch. Dermat. & Syphil. 56, 419, 1947, Lane and Blank report tests on humans determining the sensitivity of sodium soaps of several fatty acids such as the stearate, palmitate, laurate, oleate, etc., and find that the most irritating is the laurate, with stearate and palmitate least. The oleate was also a sensitizer. As a result of their work, Lane and Blank developed a combination of sulfonated oleic acid and sodium palmitate-stearate. This soap lathered well, but was not irritating.

There are numerous ramifications to this finding, if it is true. Sulfonated fatty acids such as the stearate, laurate or oleate are not new. They have been used in the textile industry for years. In fact they are still used. The addition of a sulfonated fatty acid to other products with detergent properties might prove interesting, although the addition of sulfonated oils to soaps is also not new. The work of Lane and Blank, however, puts a new slant on the en-

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tire subject, and in particular it establishes an irritation index for sodium soaps of fatty acids commonly used in cosmetics.

FACE POWDER ALKALINITY

Also in Arch. Dermat. & Syphil. 56, 666, 1947, Sharlit determines the alkalinity of 16 samples of face powder and three samples of talc. The highest pH recorded is 9.43 for domestic talc, and the lowest was 7.19, in a costly powder particularly striving for neutrality.

The author does not argue the merits of alkalinity but does state that "I have elsewhere expressed myself unconvinced of any danger from the alkalinity of toilet soap." Perhaps that is a clue.

Ingredients that are partly soluble in water and which are used in face powder are, of course, calcium carbonate, magnesium carbonate and the traces of alkaline earth carbonates that are natural contaminants of talc. These are all alkaline in reaction. The question is, can these ingredients be replaced? It is my belief that they can. Alkalis damage perfume. A neutral, bulky absorbent for perfume like silica gel should answer the problem . . . and protect perfume.

and the sources of supply in packing Henna Dyes and Henna Rinses for the professional beauty parlor trade. M. F.—MAINE

A: The manufacture and sale of hair dyes is a very complicated business and one fraught with considerable danger if in the wrong hands. Ordinarily, we do not recommend formulations for such products. However, we can tell you that henna rinses intended to give the auburn shade as sold in industry, consists essentially of the crude drug henna, ground to suitable fineness. No penetrant is required if the hair is properly washed before. To produce a more blond shade, Redgrove and Foan recommend a mixture of three parts of Turkish Rhubarb and eight parts of henna, to be used in the same manner as henna itself. The so-called compound henna dyes usually consists of combinations of henna with varying amounts of pyrogallol and copper sulfate with or without inert ingredients such as lamp black and sienna. These are described in detail in the book entitled-BLOND OR BRUNETTEby Redgrove and Foan.

QUESTIONS AND ANSWERS

675. HAIR RINSE

Q: We wonder if you could accommodate us with the formula for hair rinse in powder form, to be used before shampooing. In some of our Provinces we have very hard water, so that the scum and alkali on the hair—even with the very best shampoo—is not entirely removed.

H. S.—CANADA

A: It is better to include a water softener in your shampoo formula than to use it before the shampoo. The inclusion of about 2 per cent of sodium or potassium tetrapyrophosphate in your finished shampoo formula will aid greatly in proper rinsing of the shampoo from the hair. It is also sometimes useful to add one of the surface active agents which are compatible with soap such as the sodium alkyl aryl sulfonates which help disperse any hard soap scum formed. A rinse of sodium metaphosphate may be used after soap shampooing to remove scum.

676. KEROSENE ODOR

Q: Certain difficulty has been experienced in effectively masking bland and semi-bland kerosene. Your recommendations will be very much appreciated.

G. E. L.—TENNESSEE

A: We suggest that you contact some of the advertisers in THE AMER-ICAN PERFUMER who offer aromatic compounds. All of these houses make specialties to be used with kerosene for the purpose of masking its odor.

677. HAIR PREPARATION FORMULA

Q: I am very much interested and desirous of obtaining a cream-oil formula for the hair, which would be a non-alcoholic preparation. I would like to use this preparation for the grooming of hair, relieving dryness and removing loose dandruff.

K. H.—PENNSYLVANIA

A: Try the following formula for an emulsified hair dressing as a basis for experimentation:

(A)	
	Per Cent
Petrolatum	7.5
Mineral Oil 65/75	37.5
Lanolin (anhyd)	
Sorbitol Oleate	3.0
Beeswax (white)	2.0

Borax 0.5
Water to make 100.0
Perfume q.s.
Bring (A) to 75 deg. C. Bring (B) to 75 deg. C. Add (B) to (A) slow-ly with moderate, but thorough agitation. Perfume at 45 deg. C., and

678. HENNA DYES AND RINSES

agitate until cold.

Q: Please advise whether or not you would be in a position to give us any information on the formulation

679. LANOLIN HAND CLEANER

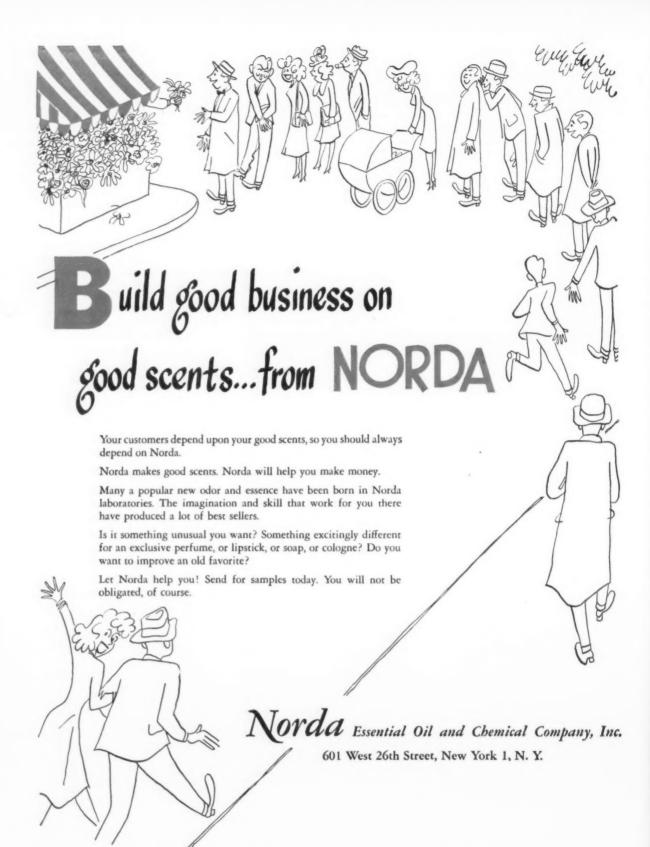
Q: We would appreciate it very much if you would kindly suggest a formula for a "Lanolin" base hand cleaner.

G. M.—CANADA

A: We are not entirely clear what you have in mind for a lanolin base hand cleaner. Is it a soapy product that you have in mind? Or is it a cream product that is soapless? If soapy, then we would suggest that you make a paste of hard soap using one of the polyol stearates as fillers and bodying agents, together with about one-half to one per cent lanolin, otherwise the foaming properties will be greatly reduced. If it is a greasy preparation for cleansing hands, we suggest that you try the following formula:

formula:		
Petrolatum	30 p	arts
Lanolin	10	66
Mineral Oil		66
Sorbitol Sesquioleate	2	66
Spermaceti	5	44
Water to make	100	66
The fats are all melted toge	ther	and
brought to about 65 deg.		

The fats are all melted together and brought to about 65 deg. C. The water is heated to the same temperature and added to the fats under rapid agitation. The mixture is perfumed and homogenized at about 50 deg. C.



Dentifrices and the Tooth Surface

RALPH W. PHILLIPS*, A dentifrice should have adequate cleansing power and must attain GRANT VanHUYSEN* a balance between polishing the surface and also cleaning that area

THERE can be no doubt that good teeth add much to the health and pleasing appearance of an individual. According to our modern concept of beauty, no one can be considered very attractive if his teeth are dirty or badly decayed; unsightly teeth are a very serious handicap (note Figure 1).

APPEARANCE OF THE TEETH

The appearance of the teeth of most people living in a country such as the United States is marred either by discoloration from dingy films and food debris which collect upon the visible tooth surfaces or by decay that can start

upon the hidden surfaces and slowly, insidiously spread to the visible parts and eventually discolor and destroy them. It is important, therefore, that we not only understand why we should take care of our teeth but also how we can safely maintain the natural beauty of these structures.

The exposed surfaces of the teeth should appear clean and highly polished (Figure 2). In the young person the biting edges are an opalescent blue-white, which gradually blends with the soft ivory shade of the body of the tooth as the gum margin is approached. Some individual's teeth appear to have more of the ivory shade than do those of other people, but much of this is due to the contrast between the complexion and the teeth. As the individual grows older, the whiter biting edges are lost due to wear,





Figure 1. Improper mouth hygiene can result in unsightly teeth



Figure 2. Tooth surfaces should be clean and highly polished

and the ivory-shaded body of the tooth becomes more conspicuous.

PHYSICAL STRUCTURE

The teeth are very hard, dense, bone-like structures. More than one half the tooth makes up the root, this part being imbedded in bone and gum tissues. The smaller part, or crown, is that portion of the tooth which is seen in the mouth. The outer portion of this exposed crown is covered with a layer of hard, translucent enamel, which varies in thickness from about 2 mm, on the biting surface to that of a razor edge at the gum margin. Under the enamel of the crown is a solid tissue called dentin. which also makes up part of the root. In the center of this dentin is found the soft tissue pulp, or nerve. The pulp contains the nerves and blood vessels, which enter through an opening in the end of the root. Actually, the color of the tooth comes from light reflected through the translucent enamel from the pulp and ivory-like dentin. A crosssection of a tooth is shown in Figure 3.

The enamel is unlike other surfaces of the mouth, and in fact, is unlike any other body surface. All other body surfaces are transient; they are slowly being rubbed off and replaced by small microscopical cells from beneath. The skin is, therefore, to a large extent self cleansing. These surfaces, of course, do collect dirt, but a healthy skin does not collect huge accumulations of debris such as those one may see in mouths which are poorly cared for. The mouth and other body cavities are covered with a skin called a mucous membrane, where in addition to the constant rubbing away and replacement of surface cells there is also a constant flow of saliva or other secretions which bathe the tissues and prevent debris from sticking fast.

TOOTH PLAQUE

The human enamel, however, is a fixed tissue; its surface is not being shed and continually renewed. It is true that the lips, tongue, and flowing saliva do remove much food debris from the enamel, but in spite of that, bacteria will grow thereon. These bacteria gradually pile up to the point where precipitated salivary mucous will deposit. Food debris in an emulsified or very finely divided form is then added, then more bacteria and mucin is deposited until a definite film is formed, this film interfering with the natural reflection of light from the enamel surface. The surfaces of the enamel cease to glisten; they are dull and dingy. Some of the bacteria which collect in this film elaborate brown, orange, or green pigments which are, of course, unsightly. These accumulations of organic material also break down and produce odors that are decidely offensive. When these deposits of debris have been recently deposited, they are soft and can be removed with a tooth brush and a dentifrice in most cases. The small amounts which are not removed, however, have a tendency to harden by calcifying. They can then be removed only by the expert hands of the dentist, who is better able to see where they are and has the instruments which can reach the areas inaccessible to the tooth brush. Those people who accumulate more of this hard stain and debris than do others should let their dentists decide how often it is necessary to receive treatment. The dentist can also at these times give expert advice about the effectiveness of the individual's tooth brushing efforts.

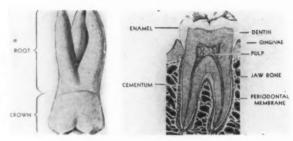


Figure 3. Cross-section of tooth

The dentist, of course, has been well trained over a long period of time to do his share, but the patient must learn the correct methods necessary for keeping the teeth clean. The number of times one puts a tooth brush in his mouth does not indicate in any way the degree of cleanliness of the teeth. Each accessible surface of the teeth must be actually cleaned by rubbing with a brush and dentifrice, which must be properly applied to the teeth in such a manner that all possible enamel surfaces are scrubbed. I'roper tooth brush technique can best be taught by the dentist or dental hygienist.

Tests have shown beyond any doubt that a dentifrice is necessary to polish the teeth. One can remove food debris with a tooth brush alone, but to polish the surface and keep it relatively free from film for the greatest length of time, the mildly abrasive action of a dentifrice, properly used, is essential. Therefore, the primary values of a dentifrice lie in its ability to (1) clean the tooth surface by removal of dental plaque and stain, and (2) polish the enamel. Dentifrices must be formulated with this two-fold purpose in mind.

Any attempt to evaluate and compare dentifrices must include a comprehensive investigation of the following factors:

- 1. The effect on the solubility of the enamel and dentin
- 2. The effect on the hardness
- 3. The abrasiveness
- 4. The effect on the final polish

Naturally, a dentifrice should not exhibit any chemical action upon, or alter the hardness of, the normal tooth surface. In general it can be said that there is no practical difference between any of the popular dentifrices in regard to any action either in dissolving enamel or dentin or in softening the tooth surface. The extensive studies, weight loss and hardness changes (by use of the Tukon Tester. Knoop Indenter), which have been made at Indiana University School of Dentistry showed no significant loss in weight or change in hardness of tooth sections even after 20 days continuous immersion in concentrated dentifrice slurries.

CHEMICAL ACTION OF VARIOUS MATERIALS

In this respect, it is interesting to note the effect of certain other materials commonly taken into the mouth. For example, whole tooth sections stored in 1:10 concentration of lemon juice lose 20 per cent of their original weight after 20 days, while orange juice causes a loss of 10 per cent. The fact that the solubility of enamel is influenced by the hydrogen ion concentration and the Ca and P concentration of the surrounding media has been well established. We sometimes see clinical manifestations

of this severe erosion of enamel trom protonged exposure

to acid solutions, such as lemon juice.

Likewise, the breakdown of food particles trapped in the mouth may also produce dissolution and softening of the enamel surface. Due to fermentation, a 25 per cent solution of graham cracker will cause a hardness loss of 60 per cent from the original, while raw apple produces a 50 per cent reduction in hardness. Bread, banana, and candy will soften the tooth so markedly in 20 days of immersion that it is impossible to obtain hardness readings. Since the solubility of the enamel is a vital factor in the mechanism of tooth decay, the action of these materials, when allowed to remain in contact with the enamel for prolonged periods of time, can be very dangerous. Proper use of tooth brush and dentifrice undoubtedly aids in removal of such accumulations. Fortunately none of the present dentifrices, to our knowledge, exhibit any such dissolution or softening of the enamel. This fact is essential since it is theoretically possible that particles of tooth powder might become lodged in pockets or between teeth.

Thus, any practical differences in the modern dentifrices lie not in their chemical action on the tooth but rather in their relative effect on the luster or polish of the

enamel surfaces.

MORE RESEARCH NEEDED

The studies which we have made in this field have been designed not only to determine any significant differences in abrasives and dentifrices, but what is much more important, to attempt to shed light on the clinical requirements of a dentifrice. Unfortunately, past research has not clearly answered many of the complex questions which must be solved in order to evaluate the effectiveness of a dentifrice, i.e., the type of abrasive most sympathetic to tooth structure, the exact amount of abrasion necessary to remove stain and dental plaque, the relationship of abrasion to luster on the one hand and abnormal wear of tooth tissue on the other, whether cleansing action should be sacrificed for polishing action, etc. Until dentistry can determine what it needs and desires in a dentifrice, no one can conscientiously evaluate the various commercial makes or prescribe any specific recommendations or specifications. For most of the materials used in dentistry such as cements, gold, amalgam, etc., we have certain definite prescribed specifications that must be met for assurance of stability in the mouth. The only American Dental Association specification for dentifrices is a simple laboratory test which merely detects gross abrasive impurities. such as pumice. Eventually, by expanded research, both laboratory and clinical, dentistry should be able to supply the answers to the complex problems which must confront the conscientious dentifrice manufacturer.

It is our belief that some valuable facts can be gleaned from a study of the various agents commonly used in dentifrices, particularly in regard to their ability to polish the tooth surface. For such studies, we have employed two general methods of study: (1) visual objective observation of luster changes by comparison with a series of standards, and (2) miscroscopic study of the tooth before and after the brushing period. Both methods of study are essential for correlating and interpreting the effects of abrasives. (It should be kept in mind that polish or luster is a surface phenomenon and is entirely independent of tooth color. In other words, it is possible for a yellow tooth to possess as high a sheen or polish as a white tooth.)

The general experimental procedure which was used can be very briefly described. A mechanical tooth brushing machine, capable of brushing six teeth at a time, was used. The arbitrary brushing time selected was 100 minutes, which is roughly comparable to two years of normal hand brushing. The concentration of the abrasive was 10 grams of powder to 20 cc. of water.

The teeth were graded in luster by comparison to a control series of luster standards, composed of eight teeth which progress proportionally in luster from very low to extremely high. The teeth were graded before and after each test. Each abrasive was tested for (1) its ability to raise the luster on a dull surface, (2) its tendency to dull

the luster on a highly polished surface.

Since microscopical pictures and subsequent interpretation of these pictures will vary to such a great extent by alterations in the angle of lighting, exposure time, developing time, etc., it was extremely important to standardize all variables in order to compare various pictures. Thus. a standardized examination and photographic procedure was used throughout, so that any differences noted are due to actual surface alterations and not due to variations in experimental technique.

A method which has been frequently employed by other investigators to accentuate surface scratches and roughness is to coat the tooth with a thin layer of graphite. The dry graphite is lightly brushed on the tooth surface and then the excess is blown off by hand syringe. A rough surface will retain more of the graphite, and hence the scratches will be more clearly shown. Rougher surfaces will also appear much darker due to the retained graphite. Therefore photographs should be studied not only for scratches but also for the degree of darkness or lightness in order to determine the relative smoothness and luster. This use of graphite definitely has merit and does aid in securing the contrast which is necessary when polished surfaces are being studied.

VARIOUS ABRASIVES STUDIED

The abrasives selected for this study are the ones commonly used, in varying proportions, in commercial dentifrices. They are:

1. Di-calcium phosphate

2. Tri-calcium phosphate

- 3. Calcium carbonate, Snow Top Precipitate
- 4. Calcium carbonate, Snow Top Precipitate

5. Sodium meta-phosphate and tri-calcium phosphate

The ability of each abrasive to polish a dull tooth surface is summarized in the table below, which shows the average rise in our luster divisions from the original "low."

Abrasive	Luster Chan
CaCO ₁ (Extra Heavy)	0
CaCO ₃ (Standard Drug)	0
Ca ₃ (PO ₄) ₂	+1
Ca ₂ H(PO ₄)	+1
Meta-phosphate + calcium phosphate	+5

From this table, it can be seen that the only agent which exhibited a definite polishing action is meta-phosphate+ calcium phosphate, which produced a marked increase in luster after 100 minutes of brushing. The other, particularly the carbonates, do not appreciably polish a tooth which possesses a low degree of luster.

In order to detect any tendency toward dulling a polished tooth surface, the abrasives were tested on teeth pos-



Figure 4

Figure 5

Figure 4. Photo-micrograph (120x) showing graphited tooth surface which was brushed with CaCO₂ (standard)

Figure 5. Tooth surface brushed with CaCO (extra heavy)

sessing a very high original luster. The average results after 100 minutes of brushing were as follows:

	Abrasive		Luster Chang
1+	Meta-phosphate + calcium	phosphate	0
	Ca ₂ (PO ₄) ₂		7
W .1	Ca ₂ H(PO ₄)		-1.0
	CaCO (Standard Drug)		-6.0
	CaCO ₃ (Extra Heavy)		-6.3

Thus, when starting with a high polish, all of the abrasives except meta-phosphate+calcium' phosphate produced a dulling action, particularly the carbonates, which lower the luster almost the complete length of our luster scale, from a "super high" to a "low."

This severe abrasive action of CaCO₃ (standard) can be seen in Figure 4, which shows the microscopical picture (120x). The scratches, accentuated by the graphite, run vertically. Likewise, the abrasive action of CaCO₃ (extra heavy) can be seen in Figure 5. In direct contrast to this abraded surface, Figure 6 shows the surface of the same tooth when brushed with meta-phosphate—calcium phosphate. The surface is smooth and naturally the photograph appears much lighter due to less graphite being retained.

The difference is even more vividly portrayed in Figure 7, where the two abrasives are compared on the same tooth. The left half of the tooth was brushed with CaCO₃

(extra heavy) and the right side with the meta-phosphate+calcium phosphate agent. The actual visual appearance of this tooth is shown in Figure 8, where the high luster attained by the meta-phosphate+calcium phosphate on the right is in definite contrast to the dulling effect of the CaCO₃ on the left half of the same tooth.

SUMMARY OF ABRASIVE ACTION

Many experimental data, and substantiating photographs, with various alterations from this general method of approach, could be offered but very briefly the action of these agents can be summarized as follows:

- Calcium carbonate, both extra heavy and standard, produces a marked abrasion of the tooth surface. Because of this resulting rough surface, these abrasives possess no polishing action and will actually cause extreme dulling of a naturally smooth, lustrous enamel surface.
- Di-calcium and tri-calcium phosphate are rather inert in regard to their polishing action. They raise the luster very slightly on a dull surface and do not produce any marked dulling of a highly polished surface.
- 3. The meta-phosphate+calcium phosphate agent is superior to all of those tested in terms of its ability to polish the enamel surface. It will raise the luster on a dull tooth, sometimes as high as five luster divisions. Microscopically, it shows no abrasive action. (By abrasive action, we mean scratching of the surface, not cleansing action which can possibly be achieved without scratching.)

This difference between the abrasives, and particularly between the carbonates and meta-phosphate+calcium phosphate, must be associated with variations in their particular size, uniformity, and hardness. No attempt will be made in this paper to touch on this complex problem, but merely to point out the differences of the abrasives in their action on enamel surfaces.

Before one could offer an opinion concerning the practical clinical significance of these observations, the effects of these agents in dentifrices has to be studied. It is quite possible that when they are placed in commercial dentifrices, their behavior is markedly altered due to reduced concentration and the influence of other ingredients. Also some of the dentifrices contain combinations of these







Figure 7



Figure 8



Figure 9

Figure 6. Same tooth as in figures 4 and 5 brushed with metaphosphate + calcium phosphate agent

Figure 7. Microscopical appearance of tooth brushed with CaCO₂ (extra heavy) on left side and with meta-phosphate + calcium phosphate on right

Figure 8. High polish on right produced by meta-phosphate + calcium phosphate

Figure 9. Left diagonal half of tooth brushed with chalk dentifrice while right side was brushed with dentifrice which contained metaphosphate + calcium phosphate

agents, and their action together might be quite different than when considered individually.

However, our research with the popular dentifrices has led to the conclusion that in general the action of the dentifrice closely parallels that of its principle abrasive. For example, Figure 9 shows the microscopical photograph of a tooth, the left half of which was brushed with a typical chalk dentifrice, while the right side was brushed for an equal period of time with a dentifrice containing metaphosphate+calcium phosphate as its principle abrasive agent. The diagonal line of demarcation between the two is very pronounced, with the CaCO₃ dentifrice having a scratched, abraded surface as compared to a smooth, polished enamel produced by the other dentifrice. (The dark vertical line is, of course, a crack in the enamel.)

These few illustrations have only shown the tendency of certain abrasives and dentifrices to scratch the enamel surface and hence lower the polish because of reduction in the reflected light. However, there are various other effects which play an equally important role. One of these is "pitting" action displayed by certain abrasives, which, of course, leaves a rougher surface and hence lowers the luster.

TOOTH DECAY

The reader may have wondered by this time why nothing has been said about the relationship between the proper use of a brush and dentifrice and tooth decay. What then has happened to the old saying, "A clean tooth will not decay?" This statement, of course, is true if one means that the tooth is microscopically clean. The whole problem revolves around the ability to clean all the surfaces of the teeth perfectly. The discussion of the teeth and dentifrices in this article pertains to the accessible surfaces that are visible to the outside. Tooth decay seldom starts upon these surfaces, and this type of decay only occurs in a small percentage of cases and is very definitely prevented by adequate brushing. Most of the decay starts, however, upon the hidden and inaccessible tooth surfaces and in deep fissures which are not reached by the tooth brush and dentifrice. Actually then the dentifrice is primarily a cosmetic agent used to clean and polish the teeth and to stimulate a sensation of cleanliness and freshness of the mouth.

Attempts in the past to put therapeutic agents in dentifrices have been tried without too much success. Fluorine has been placed in drinking water and has been shown actually to reduce tooth decay because of its contact with the teeth. Efforts to bring fluorine-bearing dentifrices in contact with the teeth for the purpose of reducing tooth decay have been tried without success to date. Perhaps fluorine placed in a mouth-wash will, when used correctly, reduce tooth decay, but it has been shown in this report that a brushing action with the proper dentifrice is essential to keep the visible surfaces lustrous and clean, and this can not be done with a mouth-wash.

Raising the luster of the teeth and preventing tooth decay are two different procedures and must be recognized as such. With a tooth brush and a dentifrice, one can make teeth cleaner and more lustrous; however, other methods must be evolved which will also reduce the tooth decay.

Fluorine, its mechanism and effect in reducing tooth decay, will be discussed in a future paper. At that time, the possibilities of its successful use in a dentifrice, mouthwash or other product will be more thoroughly covered.

In summary, it can be said that the meta-phosphate+calcium phosphate agent produces a significantly higher polish on a normal enamel surface than do any of the other agents here tested. This may be attributed to a smoother enamel surface. It would be impossible at this time to make a definite statement concerning the clinical significance of this finding. As pointed out in the introduction of this paper, it is our hope to expand future tests with a view to determining definite clinical requirements for dentifrices. However, several opinions could be offered at this time, based wholly upon the results of these tests and theoretical conclusions.

It would appear that the smoother surface produced by meta-phosphate+calcium phosphate or some similar acting agent might be advantageous:

1. Esthetically because of the higher polish.

2. A smoother surface might be less receptive to the retention of dental plaque and debris. It would seem probable that the rougher the surface, the easier foreign material would adhere. A smooth surface would thus aid in keeping the area clean.

 The apparent lesser abrasiveness of meta-phosphate+ calcium phosphate might be advantageous in reducing the degree of abrasion and erosion.

These opinions must be fully substantiated by future research. It must be kept in mind that a dentifrice should have adequate cleansing power and must attain a happy balance between polishing the surface and also cleaning that area.

Women Are Using More Cosmetics

The third biennial Good Looks survey, conducted by the Women's Home Companion among its more than 3,700,000 readers since April, shows the use of lipstick has gone up from 85 per cent in 1945 to 93 per cent in 1947. Clear, bright red is indicated as the favorite color.

The use of cleansing cream has risen ten per cent, from 51 per cent in 1945 to 61 per cent in 1947, and general use of various face creams has increased, with cold cream the only exception. This has gone down 8 per cent.

Sixty products are included in this year's Companion survey as against 36 in 1945 and 19 in 1943. Some of these added products are perfume and sachet powders, cologne and toilet water, cleansing tissues, nail polish remover, protective coat, bath salts and bubble bath.

The survey also shows that most American women shampoo their hair once each week, that use of hair rinses has risen from 17 per cent to 26 per cent since 1945, use of antiperspirants and deodorants has gone up from 88 to 93 per cent. In this last category, *Companion* readers report 60 per cent of the men of their families are using antiperspirants.

Although 36 per cent of American women have to buy their own perfume, 21 per cent tell the men in their lives exactly what they want and about 33 per cent just hint. With 33 per cent of women using perfume, the survey shows that income has very little effect on its use. Only 18 per cent use no nail polish, but 76 per cent of those who do always manicure their own neils, 19 per cent usually do, and 3 per cent use buffing powder. Clear red is the first choice, but younger women like the darker shades and older women the pale rose tints.

Azulenes

The author covers the scope of azulenes, their preparation and chem-JOE H. CLARK* ical structure

THE first observation that a substance having a blue color occurs in oil of camomile was reported in the fifteenth century. Since that time extensive studies have shown that this or similar blue coloring matters are constituents of about 20 per cent of the known essential oils. The isolation and determination of the structure of these substances has long defied the efforts of numerous chemists. Within the past decade Pfau and his collaborators have carried out investigations which have terminated in syntheses.

MANY AZULENES REPORTED

The substances secured from the oils, usually by a dehydrogenation procedure, have been named "azulenes" because of their deep blue or violet color. Many azulenes have been reported. Each was named for the oil from which it was isolated; e.g., guaiazulene from oil of guaiacum wood, camazulene from oil of camomile, eucazulene from eucalyptus oil, and gurjunazulene from gurjun balsam. A synthetic azulene was reported as a by-product in Reppe's work on cyclooctatetrene.

Little progress could be made in determining the structures of these compounds until a method for extracting them from the essential oils was devised. The discovery by Sherndal, in 1915, that the azulenes could be extracted from ether or ligroin solutions with concentrated phosphoric acid provided the needed tool. The material could then be recovered by dilution of the acid with water.

NATURE OF AZULENES

From the azulenes thus purified, crystalline picrates and styphnates were prepared. Analytical data from the purified azulenes and their derivatives showed them to be hydrocarbons with the molecular formula, $C_{15}H_{18}$, isomeric with alkyl naphthalenes having the same number of carbon atoms.

Hydrogenation studies showed the presence of five double bonds; molecular refraction and parachor calculations indicated the presence of two rings. Neither of the rings, however, was aromatic since oxidation of the azulenes themselves and their hydrogenated derivatives, either with ozone or with permanganate, gave only formic, acetic, and isobutyric acids and acetone. No derivatives of benzoic or phthalic acids were obtained.

A number of unsatisfactory structures were proposed by various workers on the basis of these oxidation products and other rather equivocal evidence. These structures were disproved and another, later confirmed by synthesis, was proposed by Pfau and Plattner.

They first showed that many of the supposedly different azulenes reported in the literature were identical. This was facilitated by the discovery that the azulenes formed addition products with trinitrobenzene and trinitrotoluene which had much better crystalline properties and melting points than the picrates and styphnates. These addition products were decomposed by passing them, in methyl cyclohexane solution, through a column of activated alumina. The trinitro compound was adsorbed and the azulene could be recovered from the solvent in a very pure state.

KNOWN AZULENES

Making use of the above derivatives, the known azulenes were narrowed to the following: S-guaiazulene, obtained by the dehydrogenation with sulfur of oil of guaiacum wood (the product obtained with selenium is a mixture), and also from the oils of callistris, patchouli, gurjun balsam, eucalyptus, and geranium; camazulene, from camomile and yarrow oils; lactarazulene, from the fungus, Lactarius deliciosus; elemazulene from oil of elemi; and vetivazulene from vetiver oil. The work of Pfau and Plattner was largely carried out with S-guaiazulene and vetivazulene.

When the sesquiterpene fractions of vetiver and guaiacum wood oils were dehydrogenated with red phosphorus and hydrogen iodide there were obtained, along with the ex-

pected azulenes, the naphthalenes, I (with S-guaiažulene) and II (with vetivazulene). The most obvious deduction from this fact was that the azulenes had the eudesmol skeleton III. This was excluded because the completely hydrogenated azulenes, on dehydrogenation, gave azulenes again while completely reduced compounds of the type III gave none.

The next information on the structure of the azulenes came from a study of β -vetivone, a ketone with the formula $C_{15}H_{22}O$, isolated from oil of vetiver, and which yielded vetivazulene on dehydrogenation. Reduction of β -vetivone to tetrahydro- β -vitivol, followed by oxidation with chromic acid gave a small yield of a dibasic acid, along with tetrahydro- β -vetivone, the principal product. This acid, on treatment with barium hydroxide in acetic anhydride gave a ketone containing one less carbon atom than β -vetivone. This new ketone, on dehydrogenation, gave

Formerly Research Laboratories, Eastman Kodak Company; now with American Cyanamid Company, New York, N. Y.
 From Synthetic Organic Chemicals.

a phenolic compound. These reactions are represented in Figure. \mathbf{l}

DEGRADATION EXPERIMENTS

This series of reactions resulting in the loss of one carbon atom from the ring and the subsequent formation of a six-membered ring indicates the presence of a seven-membered ring in the original molecule. The phenol was shown by synthesis to be 2-isopropyl-4,7-dimethylindanol, IV

Assuming that vetivazulene, like β -vetivone, has a sevenand a five-membered ring and also taking into account the structure of IV, structure V was assigned to vetivazulene and VI tentatively to S-guaiazulene.

These structures rest on the additional assumption that the naphthalene hydrocarbons I and II were formed by the indicated rearrangements, which may be considered as analogous to a retropinacolone rearrangement. Preliminary confirmation for the azulene ring system was obtained through synthesis.

The first syntheses of azulenes were accomplished by Pfau and Plattner from octalin; this was ozonized and the resulting diketone was cyclized to a bicyclic ketone which was then converted to a carbinol by a Grignard reagent. Dehydration and dehydrogenation gave simple azulenes, the side-chain R being determined by the Grignard reagent used. A later synthesis started from substituted hydrindenes, the six-membered ring being widened by the

use of diazoacetic ester. The most recent synthesis of the Bicyclo[5.3.0]decane (Azulene) ring system starts with cycloheptanone; the five-membered ring is built up on the seven-membered ring in several steps.

The compounds thus obtained had the deep blue color of the azulenes and formed similar derivatives. The synthetic vetivazulene was identical in all its properties and those of its derivatives with the natural product. The parent hydrocarbon azulene forms cobalt-blue crystals, m.p. 90 deg. C., having an odor like the isomeric naphthalene.

Baker, J. Chem. Society (1945) p. 264. Plattner, Helv. Chim. Acta 29, p. 730 (1946).

Petitgrain from Paraguay

Declared exports of petitgrain oil from Paraguay to the United States during the first three quarters of 1947 amounted to 35.073 kilograms, valued at \$189,328, compared with 70,780 kilograms, valued at \$445,211, in the same period in 1946.

Paraguay's declared exports of guaiacum wood oil to the United States during the first 9 months of 1947 totaled 2860 kilograms, with a value of \$11,293, an increase over 2040 kilograms, valued at \$9,837, in the corresponding period in 1946.

Ceylon, Essential Oils

Ceylon's exports of citronella oil amounted to 270,493 pounds, valued at 904,029 rupees, in the period April-June, 1947. About 111,484 pounds with a value of 399,402 rupees went to the United States. Other important destinations were: The United Kingdom, 33,805 pounds, 94,170 rupees; the Union of South Africa, 28,799 pounds, 83,064 rupees; Turkey, 18,625 pounds, 70.619 rupees; and Switzerland, 17,886 pounds, 56,732 rupees.

Exports of Ceylon's cinnamon-leaf oil increased considerably during April, May and June, 1947; those of cinnamon-bark oil declined slightly.

Ceylon exported 277,328 ounces of cinnamon-leaf oil, valued at 138,664 rupees in the second quarter of the year. The oil was shipped to the following countries: The United Kingdom, 38,992 ounces, valued at 19,496 rupees; Straits Settlements. 170,000 ounces, 85,000 rupees; British India, 46,464 ounces, 23,232 rupees; Australia, 7632 ounces, 3816 rupees; Burma, 7184 ounces, 3816 rupees; and Italy, 7056 ounces, 3528 rupees.

Ceylon's exports of cinnamon-bark oil during the second quarter totaled 2196 ounces, valued at 18,914 rupees. These shipments went to the two following countries: United States, 1796 ounces, valued at 15,714 rupees; and Australia, 400 ounces, 3200 rupees.

SCC to Advance Cosmetic Science

THE third annual meeting of the Society of Cosmetic Chemists, held at the Biltmore Hotel, New York, N. Y., on Dec. 3, 1947, was marked by the excellency of the papers presented. Abstracts of the addresses are presented below:

"An Inquiry Into The Origin Of The Literature on Perfumery," by Edward Sagarin, Givaudan-Delawanna, Inc. Books, many long forgotten, that date back to the sixteenth century, on cosmetics, beauty advice, medicine, liquor, pharmacy and alchemy, were the forerunners of a rich literature of perfumery that has developed through the ages.

Mr. Sagarin showed slides of title pages of rare books on perfumery and related subjects, and revealed that many books he is seeking are not to be found in American libraries, or exist in this country in but a single copy.

Many illustrious authors have written perfumery books, the author stated, and he cited a practically forgotten work of the famous French prophet, Nostradamus, printed at Lyons in 1555; a satirical and rather ribald essay by Benjamin Franklin on perfumes, and an abundant group of historical, romantic, formula, and technical works, and even a novel based on perfumes.

The early literature concerned with perfumes was not only linked with that of cosmetics, but also with intoxicating beverages, Mr. Sagarin pointed out, both perfume and liquor studies being parts of the subject of distillation.

At this time, Mr. Sagarin is engaged in the compilation of a comprehensive bibliography of books on perfumery and odor, and he revealed that this task is hindered by wrong dates, doubtful and sometimes incorrect data, and important omissions that are found in otherwise reliable sources. As an example, he quoted an authoritative historian who referred to "The Secrets of Alexis" as "the earliest French perfumery book," and stated that that particular work "was not the earliest, was not French, and was not on perfumery." "However," he added, "it is a book."

Mr. Sagarin expressed a wish to see the establishment of a central library in America devoted to perfumery, cosmetics and beauty culture.

"The Chemist as a Professional Man," by Raymond E. Kirk, Head, Department of Chemistry; Dean, Graduate School, Polytechnic Institute of Brooklyn. The profession of chemistry has come of age. Chemists are now much concerned about their professional status. Twenty-five years ago they did not recognize that they were a profession, and so were not concerned about professional status. Fifty years hence it is predicted they will accept their professional status as a matter of course. Today the idea is so new that it is important to talk about it. As a profession, chemistry is well established. Those who follow this profession, however, are the ones who have participated in establishing the science as a profession.

In each of the special fields where chemists are employed, one sees the same growing awareness of the great difference between professional workers and technicians. The Society of Cosmetic Chemists by its very existence demonstrates this difference.

The chemists, whether employed in the cosmetic industry or in any one of the many other industries where chemistry is important, can set their own standards of professional attainment by demonstrating their abilities and their responsible character.

Chemists will be recognized by their professional colleagues and by the public in general just as rapidly as they can demonstrate that their actions are dictated by consideration for the public interest and for the welfare of society. This can be demonstrated both in professional employment and in professional activities engaged in outside of laboratory hours. An intelligent interest in the applications of science in each community will do much



The best attendance to date was recorded at the third annual meeting of the Society of Cosmetic Chemists, held Dec. 3, 1947, at the Hotel Bilt-more, New York, N. Y. The outstanding papers presented demand concentrated attention

to establish the professional status of the individual and of other chemists.

"The Analysis of Mixtures of Hydrocarbons, Beeswax, and Spermaceti," by S. H. Newburger (Cosmetic Division, Food and Drug Administration, Federal Security Agency, Washington, D. C.). In the procedure described, the sample is saponified with alcoholic NaOH. The saponified material is extracted with benzene, leaving the fatty acids in the aqueous layer. The benzene extract contains the hydrocarbons, beeswax alcohols and spermaceti alcohols.

The benzene is evaporated and the residue taken up in hot heptane, cooled and filtered. The insoluble matter on the filter is washed with petroleum benzin (30-75 deg. C.). Some of the beeswax alcohols are insoluble in these solvents; the remainder, with the hydrocarbons and spermaceti alcohols, are soluble and will be found in the filtrate. The insoluble alcohols are reserved and later combined with the soluble alcohols recovered in a subsequent step of the procedure.

The petroleum solvents containing the soluble alcohols and hydrocarbons are evaporated and the residue dissolved in petroleum benzin. This solution is passed through an alumina column and washed with additional solvent. Only the hydrocarbons pass through the column; these are recovered by evaporation of the solvent.

The material adsorbed by the alumina is stripped with hot ethyl alcohol, combined with the beeswax alcohols insoluble in petroleum solvents, and the alcohol evaporated. The residue is the total beeswax and spermaceti alcohols.

The beeswax and spermaceti alcohols are dissolved in hot methyl alcohol. The solution is then chilled to 50 deg. C. and filtered. The insoluble matter contains part of the beeswax alcohols. The spermaceti alcohols are soluble, as well as the larger portions of the beeswax alcohols. These are recovered by evaporation of the solvent.

In interpreting the analysis of mixtures of this procedure, it is necessary to know the behavior of each of the components. Results obtained when the components were individually subjected to this procedure are:

Mineral oil—Entirely unsaponifiable, not adsorbed by Al₂O₃.

Spermaceti—Upon saponification yields fatty acids and unsaponifiable matter, most of which is cetyl alcohol. All unsaponifiable matter is adsorbed by Al₂O₃, stripped by hot alcohol, and is soluble in cold methyl alcohol.

Beeswax—Upon saponification yields fatty acids and unsaponifiable matter. Approximately 14 per cent of beeswax consists of hydrocarbons; the remainder of the unsaponifiable matter is the beeswax alcohols which are only partially soluble in heptance. The heptane soluble beeswax alcohols are adsorbed by Al₂O₃, and stripped by hot ethyl alcohol. When the heptane soluble and insoluble alcohols are combined and treated with methyl alcohol, a small amount dissolves. The proportion of soluble to insoluble matter varies with the size of the sample. A chart is included in the paper to expedite calculation of the soluble beeswax alcohols when the amount of insoluble alcohols is known.

In the procedure described, the fatty acids, the unsaponifiable matter, the hydrocarbons, the total alcohols, and the alcohols soluble in cold methanol, are obtained in weighable form.

The amount of each component present in a mixture is calculated from the data obtained from the experiments in which the components are separately examined.

"Bacteriological and Dermatological Testing of Cosmetics," by Louis C. Barail, M.D. The author, a wellknown dermatologist-bacteriologist for many years, describes the various tests that are usually performed on cosmetics. They are divided into (1) Tests for harmlessness, such as determination of the minimum lethal dose, toxicity and skin irritation tests. (2) Tests for purity which include bacterial counts and sterility tests according to the United States Pharmacopoeia method. (3) Tests for preservatives to verify the efficiency of antiseptics and preservatives incorporated in cosmetics. (4) Tests for germicidal and fungicidal value which are conducted on cosmetics which have a definite killing power against germs or fungi. In the second part of the paper, the tests are divided into three groups according to the nature of the tests which are generally performed on these products. The various types of cosmetics are studied one by one in conjunction with the various tests for harmlessness, purity and efficiency.

This paper in a very concise form gives a thorough description of testing methods which will enable the cosmetic chemists to obtain every desirable information on the components of their cosmetics as well as on the finished products. These tests are conducted according to the requirements of the Food, Drug and Cosmetic Act and the recommendations of various Government agencies and they enable many a cosmetic chemist to modify his formulas prior to marketing a compound when tests have shown that it is not absolutely satisfactory. By using



A relaxed discussion of the events of the day in one of the foyers following the meeting.



Emil G. Klarmann, C. N. Anderson, Walter A. Taylor confer.



Informality is the order of the day as guests get together following an excellent luncheon.

these tests he consequently avoids putting on the market a dangerous or imperfect product and thus prevents costly law suits against which he would have no defense. The best services are rendered to cosmetic chemists by dermatologists-bacteriologists with experience in cosmetic chemistry. They know the requirements of cosmetologists better and can devise a complete testing program involving tests of a chemical, bacteriological and dermatological nature which have to be conducted in the laboratory in vitro or on animals, or in the field on human beings. The author emphasizes the importance of toxicity tests and patch tests on human beings.

All the tests he describes bring safety to the cosmetic chemist and manufacturer, and a greater dollar value both

to the manufacturer and the user.

"The Development of Machineless Permanent Waving," by E. G. McDonough, Evans Chemetics, Inc. In the evolution of the permanent waving of hair on the human head, there have existed two distinct periods-one given to the development of the mechanical phase, the other to the chemical phase.

The mechanical phase started, as has been many times repeated, with the invention of Charles Nessler about 1905, and continued through the revolutionary mandrel and winding process of Robert Bishinger which led to the now

almost universally used croquignole method.

A system of waving invented by an Englishman, Sartory, was the forerunner of the active chemical phase in permanent waving. While utilizing chemical heat, this system resembled in appearance and use the conventional chandelier electrical unit. A hairdresser, Winkel, developed the first "machineless" pad and his initial invention was followed by many basic improvements, disclosed in various patents, involving chemical controls, exothermic chemicals, absorbents, pad structure, methods of use, etc., of Evans and Associates. In the United States the machineless pad production for one year at the start of the war was 400 to 500 millions.

"Surface Active Agents in Cosmetics." by Henry C. Speel. The task of choosing the proper surface active agent to use in formulating specific cosmetic products is often a complex problem. Practical guides include alphabetical listings by trade or brand names, by manufacturers and their products, by fields of application and by chemical structures. No one product excels in all fields of wetting, emulsifying, penetrating, dispersing, solubilizing and washing. Dermatological properties are of pri-

mary importance, with nonionics the most promising for finished items that remain in contact with the skin. Nonionics generally excell as emulsifiers and surface wetters; anionics are primarily foamers and detergents. Comparisons by Draves Test (sinking time), "Water Number," Spreading Coefficient and other methods, as well as by physical form, color, odor and even cost, deserve consideration. There is no simple method, but the wellinformed cosmetic chemist can easily select the few promising ones for a specific job from the hundreds commercially available. A fairly representative bibliography is attached to the paper, for use by anyone who wants to study it in detail.

DR. WALTER TAYLOR ELECTED PRESIDENT

Dr. Walter Taylor, Pond's Extract Co., was elected president, succeeding Dr. Emil Klarmann of Lehn & Fink, Inc., in that office. Dr. E. G. McDonough, Evans Chemetics, Inc., was made vice-president. Ruth Bien, Good Housekeeping Laboratories, became secretary, a newly created office, and Emery Emerson, Seran Co., was reelected treasurer of the Society.

Dr. Klarmann and Raymond E. Reed, Reed Chemical Co. were elected directors.

President Taylor announced the following committee chairmen for 1948: program, John A. Killian, Killian Research Laboratory; entertainment, Marcel J. Suter, Eugene, Ltd.; membership, Moody L. Crowder, Pond's Extract Co.; medal award, Curt P. Wimmer and publications, Maison G. de-Navarre, Cosmetic Laboratories,



Dr. Walter Taylor

Inc. They will serve throughout the year.

President Taylor announced that his policies for 1948 would coincide closely with those of the immediate past president, Dr. E. G. Klarmann, in that the professional aspect of the chemists of the cosmetic industry would be further advanced.

The next meeting of the Society will be held in May.

The next director's meeting of the Society will be in late January, at which time the program for 1948 will be made



Rupert C. Watson, Dr. A. B. Pacini, Franz Koster and lames Hall exchange views



Maison G. deNavarre makes a point



Emery Emerson, Henry Eickmeyer, F. C. Beardsley, Herbert Kranich, Victor Fourman, Walter Wynne and George Blake enjoy themselves

THE STRUCTURE AND

SYNTHESIS OF IRONE

YVES-RENE NAVES, D.Sc.*

THE iris, of which I have made lengthy expositions to the readers of *The Givaudanian* (viz February issue 1947), is the raw material of irone, one of the most famous odoriferous substances amongst all the ones given us by nature. This ketone has the fine and fresh odor of the violet, and although the iris and its derivatives (e.g., the essential oil or iris concrete, iris resinoids, iris absolute, irone concentrates) have high costs of production due to their specific conditions of cultivation and difficulties of treatment, they advantageously replace the products of the violet because the prices of these latter are very much higher.

In addition to its character of expansive freshness, the note of irone possesses a "powdery" characteristic that is not enjoyed by the violet products and which could only be found, in small measure, in an exceptional quality of methylionone, such as sold by Givaudan under the name of Cetone Alpha.

It is not surprising that Tiemann, one of the pioneers in the chemistry of terpene substances, should have taken an acute interest in the odorous products of the iris and in their synthetic reproduction. It was only after prolonged efforts over a period of years that he managed, aided by Krüger, to isolate irone in 1893. The yield he obtained was very modest: one gram of the ketone from fifteen kilograms of iris. He assigned to it Formula I and attributed the composition $C_{13}H_{20}O$.

IONONE SYNTHESIS IS LANDMARK

It was while striving, fruitlessly, to reproduce irone, that Tiemann and Krüger discovered the ionones (1893-1898). Everybody knows that this discovery marked the birth and rise of the synthetic perfume industry, as the manufacture of synthetic aromatics had until then been divided between the industry of intermediate organic and synthetic products and that of essential oils. Huge modern plants, specializing in the manufacture of synthetic perfume materials, were created during that period. The discovery of the ionones was felt in fields other than that of synthetic perfumery, and among others, the knowledge of the structure and the work on the synthesis of Vitamin A were the consequences.

Today, the iris root still remains the only natural source of irone, because it has not been proved to exist, or rather it is not correct that this ketone has been found elsewhere. Thus it is that the violet-odored constituent of the raspberry is not irone, but 3-ionone, as Bohnsack has recently proved. Neither, as yet, have cassie or costus, the products of which have a violet odor, yielded this secret.

However, during the half-century that has elapsed since the discovery of irone, many chemists have tackled the problem of the synthesis of that ketone. Let us spread a merciful veil over some of the attempts, retaining only those, highly praiseworthy, that gathered memorable credit.

In 1909, Merling and Welde announced and partly described the synthesis of irone, based on the formula put forward by Tiemann and Krüger. Ruzicka and Brugger, who developed this work to its full extent, proved in 1941 that this attempt led to α -ionone.

The composition and formula given to irone by German chemists were erroneous. Ruzicka foresaw this when, in 1919, he recorded strong character divergencies between tetrahydroirone and tetrahydroionone. In 1933, assisted by Seidel and Schinz, he recognized irone as having the constitution $C_{14}H_{22}O$ and showed that irene, the product resulting from the dehydration of irone, was different from that of the ionones by the presence of a methyl group near the gem.-methyls. This formula of irene was confirmed by the synthesis of that hydrocarbon, realized in 1938 by the eminent and learned American, M. T. Bogert, and his collaborator. Apfelbaum.

The formulae (H) of 6-methylionone, upon which one could from then on base one's knowledge for the description of irone or its isomers, were rejected by Ruzicka and his collaborators due to the nature of the oxidation products of irone, and to dihydroirane, and also because an attempt at the synthesis of 6-methylionone, described in 1940, ended with a product far different from irone. Developing or modifying their hypotheses, they ended up by considering irone as answering to cycloheptenic formulae, H (α -irone) and H (β -irone) and it is from these formulae that they attempted to effect different syntheses of irone and irone derivatives.

However, since 1939, I have been working on a systematic study of irone. In order to liberate myself from the uncertainties relating to the nature of the product, I myself prepared the irone from good quality current iris roots. Other obstacles cropped up; it appeared to me that, in particular, one had taken and was still taking too keen an interest in the chemical methods of characterization of products and the study of their chemical structures. Now, the great molecular plasticity of irone and of many of its

THE AMERICAN PERFUMER expects to present another article on the subject of Irone in the near future.

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derivatives could be utilized to great advantage. It is on account of this that I decided to pay particular attention to the putting into practice of physical methods which experience later proved to be correct.

FIRST PUBLICATION IN 1943

First of all, assisted by a number of collaborators, notably Dr. P. Bachmann, I tested the methods in the study of ionones and their derivatives and thus we gathered some precious references. This work was published in 1943 and 1944 in the *Helvetica Chimica Acta*. We then studied diverse geranolenes and trimethylcycloheptenic derivatives and at last we undertook the study of irone. This work, completed in 1943, was described and deposited under seal in the care of the Swiss Chemical Society. It will be published on December 1, 1947.

In conclusion we stated that the principal constituent of my irone preparations was a 6-methyl-z-ionone (V).

Assisted, particularly by Dr. A. V. Grampoloff, I realized the synthesis of 6-methyl-\alpha-ionones in 1944, and aided by Dr. P. Bachmann I identified with certainty these products as being dl-\alpha-irones. Part of this work was published on October 15, 1947, in the Helvetica Chimica Acta. A further part will be published on December 1st in the same periodical.

Three years later, in June, 1946, Ruzicka and his collaborators, backed by fruitful laboring, abandoned their hypotheses of a cycloheptenic structure and agreed to accept the 6-methylionone formulae. According to them, natural irone consists of two isomers (α and γ -irones, V and VI); γ -irone being easily transformed into a good α -isomer, the olfactory properties of which would be superior. Thus, years after us, these learned men described a synthesis of dl- δ -methylionone, in other words: dl- α -irone.

KNOWLEDGE OF IRONE EXTENDED

For our part, since our discoveries, we have widened our knowledge of the chemistry of irone, both natural and synthetic, and of irone homologues. We have carried out a careful perfecting of the methods of industrial synthesis.

Thus, more than fifty years of effort furnished by numerous chemists will have been needed to realize the first syntheses and these will have necessitated the putting into use of the most modern methods of work and the special perfecting of some of them. Many hard and arduous efforts will be necessary in order to improve these results.

Essential Oil Exports, Reunion

Exports of geranium oil from the island of Reunion during the first seven months of 1947 amounted to 22,700 kilograms, valued at 38,190,000 francs. Of this total, 15,900 kilograms valued at 25,779,000 francs went to France. and the United States took 5100 kilograms valued at 9,163,000

francs. In the same period, exports of the oil to England totaled 200 kilograms, valued at 456,000 francs, and to Madagascar, 1500 kilograms, valued at 2,792,000 francs.

Reunions exports of oil of vetivert throughout the first seven months of 1937 amonted to 6300 kilograms valued at 23,932,000 francs. Principal markets were: France, 5700 kilograms, valued at 21,661,000 francs; the United States, 400 kilograms, valued at 1,572,000 francs; and England, 200 kilograms, valued at 699,000 francs.

A total of 500 kilograms of ylang-ylang valued at 669,000 francs was exported from the island during the January-July period of 1947. The sole destination was France.

Australian Toilet Preparations

Imports of perfumery and toilet preparations into Australia during the 11 months ending May, 1947, were valued at £297,000, a marked advance over the £99,000 in the corresponding period of 1946.

The value of Australia's exports of perfumery and toilet preparations throughout the period was £A770,000, as compared with £A796,000 in the like period of the preceding year.

Madagascar Clove Production

Madagascar's 1947 clove crop may amount to 600 metric tons, and supplies believed to be held by producers may be brought out at an opportune time. The French authorities leave clove transactions free as to price, but plan to put into effect a better control on quality of exports.

The disturbances on the East Coast of Madagascar caused some destruction of stocks of cloves and also hindered some of the picking and bagging because of scarcity of labor. However, the greater part of the clove production was outside the troubled area.

Estimated clove production of 5120 metric tons in 1940 was followed by smaller crops until 1946. Production in 1941 amounted to 235 tons; in 1942, 167 tons; 1943, 355 tons; 1944, 165 tons; 1945, 500 tons; and in 1946, 3000 tons.

In 1946, exports of cloves totaled 4507 metric tons, and of clove oil, 333 tons, as compared with the 1945 exports of 3172 tons of cloves and 256 tons of clove oil, and 1939 exports of 6520 tons of cloves and 307 tons of clove oil. The United States was the principal customer for cloves in 1945 and 1946, taking 2032 and 1743 tons of cloves respectively. France ranked second, taking 1733 tons in 1946 and 519 tons in 1945.

During the February-July period of 1947, Madagascar exported 336 metric tons of cloves, valued at 13.860,000 CFA francs and 532 tons of clove oil, valued at 40.556,000 CFA francs (70 French African Colony francs = \$1).

Clove producers in Zanzibar and Madagascar would like to be in a position to supply betel-nut chewers in Java with their pre-war supplies of cloves, but there are no ship connections with that island.

The principal buyer of cloves is the United States, where a number of preparations, principally vanillin, are made from them. The demand in 1947, however, was not strong enough to raise prices appreciably.

An upturn in cosmetic sales is predicted as soon as the tax is removed . . . Perfume lines were JEAN MOWAT reduced for holiday sales

COSMETIC

TRENDS

IN THE

MID-WEST

COSMETIC buyers in the Middle West have been trying to obtain consumer reaction to prices and to merchandise in stock. This was made apparent to any and all during the last month's buying. Merchandise in the middle price brackets moved in satisfactory volume, but far under that of two years when price was given little consideration.

Today, every woman, and every man, wants full value for the dollar he is spending. The trend is expected to continue as the credit situation tightens and there is little free money. Collectors are pressing for prompt payment of bills and this is as true in the retail end as it is in the raw material end.

LOOKING BACK TO SEE AHEAD

While the driver of a car looks ahead to see his road he must also know what is behind him and that is the present situation of the cosmetic buyer. Reviewing the highlights of Holiday selling, is one way to look ahead and plan for the coming season. Buying will be cautious through Easter. This was clearly indicated by the sales registered in the past month. No splurges will be made. French perfume sold but many shops are not re-ordering until the next Holiday season.

Kits that all through the war years have been such an important item sagged badly, and therefore orders on these, either packed with cosmetics, or ready for one's own personal filling, will be slow in re-order. Contrasted with this sale (largely confined to the \$25 and \$50 kits) was the

sell-out of manicure sets. These were offered in many price ranges and in gay color. Wasson's of Indianapolis featured these at \$3.50; Ayres offered a set that included polishes, etc., at \$12.95; Emporium of St. Paul featured women's manicure sets at \$4.95 and men's at \$10.95. These indicate the general price ranges.

Re-orders on manicure sets will be made for these are all-year sellers, but this is the first time since early in the war days that a selection was available. The best in scissors and tweezers was wanted and also good files. Brand names on the polish and other nail items were important in all selling.

PERFUMES BY THE DRAM

There was not much French perfume, in comparison to the volume of domestic, but what there was sold the last week before Christmas and some Christmas money was spent for favorite fragrances for the New Year parties. The important factor in all perfume selling was the importance of drams. Buyers who have been in the business for years commented that perfume sales were slow. These were when it came to the \$45 and \$150 type of bottle beautifully boxed. This type was slow in movement yet sold in such places as Peacock's, Chas. A. Stevens & Co., and Saks Fifth Avenue, Chicago.

Dram shops did a land office business. Lines formed. Women and men waited three and four deep to be served until it was necessary to take a number in some stores. The Golden Rule, St. Paul, listed 16 brand names in its dram shop priced from \$1 to \$3. The Glass Block, Duluth, offered 17 well known types by nine makers in a price range of \$1 to \$3.75. Scruggs, Vandervoort, Barney, St. Louis made a suggestion for smart giving that had an appeal: Perfumes were listed and priced, and then underneath a line that gave the same scents in toilet water or cologne. Many women like this combination but it is not often featured as a unit which should be sold together. Scruggs suggested these items as "a toast without words to her loveliness."

PURSE PERFUMES

Last Summer this column reported that many buyers wanted a vial of some non-spilling and sure-sealed perfume and cologne to carry in the hand bag. At the Toiletries Show last September there were several different types shown. Interest was fair. Later orders began rolling in, for several buyers were given a sample for their own use and testing.

Probably there were few Christmas trees that did not boast at least one of these purse-perfume holders to keep my lady feeling fresh. It was reported as the biggest single selling unit. Chicago stores made much of this, some of them using half pages to sell the item at \$5 and to add distinction, initials were added for 25ϵ each.

From Duluth to Detroit and from Kansas City to Minneapolis the story of the purse-size perfume made news and new sales. It was the one outstanding item that created new business, for after all even two or three for the average woman was not too many for in this way each handbag could have its own. There was considerable shrewdness in the presentation as it was suggested that one for the evening bag have an alluring fragrance, the one for the shopping bag a fresh, fragrant, but not heavy odor, etc.

The tax on deodorants, these are considered as important as soap and water today, is considered unnecessary and an essential to grooming that should be encouraged and not taxed.

If the cosmetic industry can remove the tax on this, bath salts when sold in a bag, and similar items, it would be of great service in these days when every cent is being counted.

Buyers agree:

"Isn't it possible to determine which are strictly luxury items and which are essentials for good and decent grooming?" they ask. Deodorants, bath salts, and all creams, lotions and both cologne and perfume selling under \$10 should be tax free. These are matters to which the industry in the Middle West has given much thought and feel that this is an adjustment which is of immediate and outstanding importance.

WHAT OF MEN'S TOILETRIES

Every counter offering men's toiletries, and manned by a man, has had its feminine following. These salesmen say that it is the women who buy something pretty and good looking, but the men don't reepat. The Fair, Chicago, and Freimuth's, Duluth, were two stores that did a substantial business on men's toiletries. Lotion, cologne and tale was offered in packages or boxes to sell from \$2 to \$6. This is in contrast to sets which sold last year in the range of from \$5 to \$25.

For the new year many buyers will reduce their brands and keep only the best sellers, in both men's and women's lines. This means colors will be fewer in both nail polish, all rouges and powders are suggested as best mixed to order. The mix-to-order powder as a Christmas gift was novel and effective and will increase the sale of the right shade for the right face.

The business until Easter may be about the same as last year. Units for the last year about equaled those of 1946 but the difference in the dollar price was apparent, as it was in the item purchased. Imported perfumes pushed this department into a new high. The prices on these imports tended to cover the volume selling in the middle price brackets.

PERFUME LINES REDUCED IN SIZE

It was rather surprising to see that predictions made sev-

eral months ago, that lines would be reduced and the best selling ones be concentrated upon, was fulfilled at Christmas. Several stores, leaders in their field, did this in featuring cosmetics. Ayres of Indianapolis outlined four of the top lines with details about each offering and this was largely concentrated on perfume, cologne and bath oils. The Emporium stressed eight lines. Donaldson's, Minneapolis, used a full page just before Christmas to offer two lines and featured six items in each. This concentration. confined to perfumes and colognes, was highly effective and proved a volume sales' point. Chain drug stores, strong contenders for the perfume dollar, offered six lines.

An unusual feature, but well used by all leaders in this section, was confining a page or half a page presentation to one name brand and offering the various items for which the firm is noted. Marshall Field & Co., Chicago, used a Lentheric presentation of bouquet at \$5 and \$8.50 and perfume at \$5, \$15 and \$30. Hudson's, Detroit, offered Mary Chess bath oils, sachet, chessman perfume at \$9, toilet water \$7.50; and sets of toilet water with soap at \$4.25 and with atomizer at \$3.75 and \$5.75. Such items were fast sellers.

BATH ESSENTIALS ACTIVE

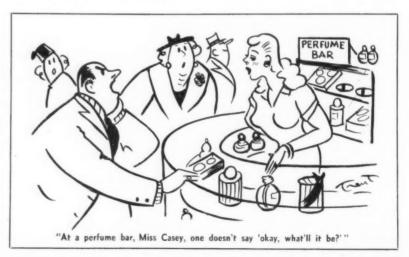
Buyers who keep a weather-eye on what is selling, so as to plan for future purchasing, are of the opinion that the sale of bath essentials has hit a new high for this year. The fragrant bath oils, so scented that the fragrance remains on the body for hours, bath salts, body talc, bubble-bath (back stronger than at any time since it was introduced) and body lotions such as the skin damask which Terrel puts out, have been outstanding in sale.

With the first snows, last Thanksgiving, and then when the mercury dipped to zero the after-bath lotions were active, but few buyers expected to see these mount to the Christmas level which was written. Part of this was assumed to be the answer to a smart package at moderate prices. Whatever the reason, stocks are low and in excellent condition for purchasing in January.

LOOKING INTO THE NEW YEAR

The holiday sale and presentation of creams, lotions and shampoos, which have been hitting a new high in the smaller packages will be the January promotion. Weather will aid sales to some extent but it is the general opinion that until the Federal tax is removed these essentials for skin care will lag far behind the actual need a woman has for them.

Throughout this area where the water is hard and special soap has to be used just to obtain a lather, the use of this combination on skins is giving the average woman a dried-out look and a very leather-appearing skin. Bath salts—even those offered in 5-pound bags—carry a Federal tax and that, plus any type of hand lotion to keep them free also is taxed and the result is going to be a long uphill climb to put skins in good condition—if and when the tax is removed.



Liquid Nail Polish

A successful lacquer gives the required ease of application, speed of drying, gloss, hardness HENRY J. WING* and wear resistance

H ISTORY indicates that long ago women blackened their eyebrows, rouged their lips and faces and painted their nails. More recently milady manicured her nails and enhanced their appearance by smoothing them with a soft powder or paste abrasive giving them brilliance by the use of a chamois buffer.

However, this was a slow process and, when liquid materials were introduced which gave luster to the nails without the long and tedious buffing process, they were readily accepted. The first such liquid polishes were solutions of spirit soluble gums dyed pink or left the natural color. When the new types of nitrocellulose were invented from which it was possible to produce high solids—low viscosity solutions which were found suitable for fast drying iacquers for industrial use, it required but little thought to decide that here was a material which was a better film former for liquid nail polish than any then in use. Since its first introduction in the early 1920's by the pioneer house in beauty preparations for the hands, solutions of nitrocellulose have been the only practical liquid nail polishes.

Modern nitrocellulose is manufactured to give solutions of various viscosities when the different types are dissolved in the same solvent combination. A low viscosity nitrocellulose means that a higher concentration of this nitrocellulose will be required in order to give a solution of the same viscosity as that of a solution containing a smaller amount of nitrocellulose of a higher viscosity grade.

In actual use it has been found that the low viscosity grades of nitrocellulose, those having a viscosity designation of ½ second or less, produce dry films which are more brittle than those made from higher viscosity material. However, too high a viscosity material will mean that, in order to have a solution of proper consistency, so little nitrocellulose can be used that the resulting film will be too thin.

WHO SHALL MAKE NAIL LACQUER

It has been found by experience that approximately ½ second nitrocellulose meets the requirements of nail polish lacquer to the highest degree. However, it may be neces-

sary to modify this slightly by the addition of some \$\frac{1}{1}\$ second nitrocotton if the solution is too viscous, or some 5-6 second material if it does not have a viscosity high enough. The production of colorless lacquer from nitrocellulose is an art which is usually left to those who are specialists in this field since the handling of nitrocotton involves an element of risk which should be undertaken only by those who have had the proper experience.

PLASTICIZERS

Nitrocellulose alone when deposited as a film from a solution is quite brittle and does not have very good adhesion to most surfaces. In order to form a film of greater flexibility and adhesiveness and, therefore a more suitable film for nail polishes, the properties of the nitrocellulose are modified by the addition of materials which are called plasticizers. The first plasticizer used with nitrocellulose was camphor. This has been supplemented and replaced by many other plasticizers such as diethyl phthalate, dibutyl phthalate, Santicizer No. 8, dioctyl phthalate, raw and blown castor oil and many others. Each of these imparts slightly different properties to the dried film, but all of them increase its flexibility and usually cause it to adhere more firmly to the nail.

Plasticized nitrocellulose films do not have a very high luster. The makers of automotive and industrial enamels found that in order to make these products more lustrous, it was necessary to add resins such as damar to the solutions. Later, synthetic resins such as the alkyds were used. However, it was found that resins of this type in nail polish lacquer were not practical. The presence of these resins made the nail polish more sensitive to the effects of water. Since nail polish in use must undergo soapy water immersion, it is not improved if one of the added ingredients makes the dried film more sensitive to such treatment.

NEW RESIN INTRODUCED

About ten years ago a new type of resin was introduced for use in lacquers. Its makers admitted that it did not increase the resistance of a lacquer film to outdoor exposure. However, it gave good luster to nitrocellulose films and increased their resistance to soapy water. These resins of the sulfonamide-formaldehyde type have been used in all modern nail lacquers since that time.

Analysis of the colorless portion of a modern nail lacquer will show about 10 per cent nitrocellulose, resin about 10 per cent, and plasticizer about 5 per cent. The solvent portion is made up of the alcohol with which the nitrocellulose was wet, nitrocellulose solvents such as ethyl acetate and butyl and amyl acetate. together with more alcohol or a hydrocarbon diluent such as toluene. The proportion of these will determine the rate of drying of the film and, to some extent, the viscosity of the solution. A typical com-

Research Director, Noitham Warren Corp. From a talk delivered before the Scientific Section of the Tollet Goods Asun., Dec. 4, 1947.

bination would be alcohol five parts, ethyl acetate twenty, butyl acetate fifteen and toluene thirty-five.

CREAM TYPE NAIL POLISH

The first nitrocellulose lacquer nail polishes were clear although various shades of red were used. This coloring was accomplished by the use of dyes which could be dissolved in the solvents used. A little over ten years ago a radical change was made with the introduction of cream type nail polishes. The lacquers used were no longer transparent but were opaque and creamy. This opaqueness was accomplished by the use of pigment colors instead of dyes and the introduction of white pigment such as titanium dioxide into the lacquer. Only colors which have been selected after careful trial should be used in nail polish. Only certified colors or inorganic colors of the proper degree of purity may be used. Mr. Thomasett in a recent article1 has shown that a maroon, a red and a yellow certified color, together with cosmetic grades of iron oxide, iron blue and titanium dioxide, are all the colors required to produce modern nail polish shades. The colors mentioned in this article have been selected after long experience and have been found to be quite fast to light and to have but little tendency to stain the nails of the users.

COLOR GRINDING

Having selected the colors to be used, it is next necessary to grind or disperse them so that the particles will be as fine as possible. This is accomplished by grinding the pigment in a plastic mass consisting of nitrocellulose and plasticizer, using a two-roll, differential speed mill. No other method of dispersion, ball mill, stone mill or any other will give the fine dispersion or the color development required for the production of a high quality nail polish lacquer.

When the dispersion is complete, the nitrocellulose-pigment-plasticizer mixture is taken off the mill in a thin sheet which may be broken up into chips for ease of solution in the lacquer solvents. This method of dispersion is carried out only by specialists in this type of work because the grinding or passing of nitrocellulose through a heavy mill is a dangerous operation unless carried out by operators well versed in the procedure and who understand the dangers involved.

CONTROL OF SOLIDS

The finished colored lacquer will have enough resin and plasticizer added to give the correct proportions when the nitrocellulose contained in the chips is taken into consideration. The finished colored polish will contain about 25 per cent solids of which the colors and pigments will make up only about 3 per cent. In order to be sure that the lacquer used is uniform, it is necessary to control the total solids and viscosity of the solution. The total solids may be determined by evaporation and drying to constant weight. This procedure is not as simple as indicated above. As the lacquer dries in the evaporation dish, a tough layer or skin is formed on top which makes the evaporation of the last part of the solvents very slow. Reproducible results are only possible when a standard procedure is used. One which has been used is to dry in an oven kept at 80°C. ± 2° for 16 hours. A sample of about 1 gram is weighed into a flat-bottomed aluminum evaporating dish about 50 mm. in diameter and 15 mm. deep. After drying and cooling in

a desiccator, the weight of the residue is determined and the amount of solids calculated. Unless this procedure is carefully regulated, the results may be unreliable. A simple nitrocellulose solution offers but little difficulty. However, the presence of resin causes the solvents to be retained to a greater extent and the plasticizers show varying degrees of volatility. The total solids determined by this method may not agree with the theoretical total solids by several per cent.

A method which does not require overnight heating with its consequent danger of loss by charring due to poor temperature regulation of the oven is the so-called precipitation method described in Gardner's "Physical and Chemical Examination, Paints, Varnishes, Lacquers and Colors," 9th Edition, p. 436. This procedure, which involves precipitation of the nitrocellulose from a dilute solution using water, drying the precipitate on a hot plate, redissolving this residue and precipitation and drying, gives quite reproducible results. Here again the solids obtained by analysis will differ from the theoretical solids due to the partial or total volatility of some of the plasticizers under the conditions of evaporation. However, by establishing the analytical solids given by either method, using a lacquer the composition of which has been set up by careful laboratory preparation from dry nitrocellulose, it is possible to use either method to determine whether the purchaser is receiving full value in the lacquer delivered.

VISCOSITY TEST

It has been found that the users of nail polishes prefer those having a definite consistency. This has been found to be about 270 to 310 centipoises or 55 to 65 seconds in the No. 10 Du Pont Cup. Many different types of viscometers have been and can be used in the control of the viscosity of the lacquer. The simple orifice type, such as the A. S. T. M. or Du Pont cup, has been found useful for this kind of control. The cup is filled with the lacquer at a standard temperature, usually 25 deg. C., and the time required for 50 ml. to flow into a graduated receiver is determined, using a stop-watch. By keeping the viscosity within definite limits, the producer is more likely to satisfy his customers because they become accustomed to using a polish having a favored consistency.

It is not enough to make a lacquer of constant composition and having a consistency within the required limits. This lacquer must also have the required ease of application, drying time, glass, hardness, adhesion and wear resistance when used by the customer. The producer of nail lacquers has problems to meet which the producer of industrial lacquers does not encounter. Industrial lacquers are applied to inanimate, more or less, reproducible surfaces of wood or metal. Nail lacquers are applied to the living nails. These surfaces are never exactly alike on any two persons nor even the same at different times on the same person. For this reason some of the standard tests used for industrial lacquers do not give very much useful information concerning the results which may be obtained by actual wear on the nails.

EASE OF APPLICATION IMPORTANT

Ease of application is very difficult to measure objectively. The effect of lacquer when used by the customer is probably the result of a combination of factors such as consistency and rate of drying, together with the depth of

color of the lacquer. The only good test for ease of application is to have the nail polish under consideration applied by a number of people using a lacquer which has been well accepted for comparison in each case. Half of the subjects should apply the test lacquer to the right hand and the control to the left. The other half of the group should reverse the process. By collecting the observations of a large group of subjects, an idea of the acceptability of the new lacquer may be obtained.

DRYING TIME

The rate of drying may be compared with the rate of drying of a standard lacquer by making simultaneous pourouts on a glass plate and observing the time required for the two films to become dry to the touch. In order to give a true comparison. the total solids and viscosities of the two lacquers must be nearly the same so that films of the same thickness may be obtained. For absolute comparison. this test should be made under conditions of constant temperature and constant humidity. Although only the largest laboratories are equipped to carry out such tests, the relative drying rates may be observed by making simultaneous pours in the ordinary laboratory. The drying time observed on the glass plate pours will not be the same as that actually found when the polish is applied to the nails. The drying time on the nails will be more rapid due to the heat transfer from the body. A check of the drying time of the new lacquer compared with the standard lacquer when applied to the nails should also be made.

GLOSS OBSERVATION

The pours on a glass plate which have been made to compare drying time may be used to determine the relative gloss of the nail enamel under test as compared with a standard enamel. The gloss observation may be made by a subjective comparison on the part of the chemist or by means of a more or less elaborate gloss meter. The Hunter gloss inspection lamp can be used to give comparative values which are very useful (Paint and Varnish Assoc., Sci. Sec. Cir. 503 [April 1936]).

In determining whether a polish gives a suitable gloss, the final test again lies with the consumer. The same subjects who try the polish for ease of application may be asked to state which in their opinion shows the better gloss.

The wear resistance of a nail polish is related to the hardness of the film. However, the harder film will not necessarily give the better wear because when worn on the nails, the film must have the proper flexibility, and increased hardness usually means less flexibility. Hardness may be tested by use of the Sward Rocker (Gardner, p. 117). The same films used for the drying time and gloss observations may be used for determining the relative hardness.

ABRASION RESISTANCE

Another test which is sometimes made is that of abrasion resistance. However, this is not a very good indication of the wearing quality of the polish since not many users of nail polish do much digging in sand! The test consists of allowing a stream of sand to impinge on the film of polish poured on glass until the film is worn through. The amount of sand required is a measure of the abrasion resistance. (Gardner, p. 128). It has been found that there is little correlation between the abrasion resistance determined by this method and the wear resistance actually obtained when

the lacquer is applied to the nails. The polish does not usually fail by abrasion, but it does fail by chipping which is probably caused by the bending of the nails.

Adhesion to the living nail is very difficult to measure. However, fair correlation has been found between the adhesion of the film to a glass plate and the wear on the nails. The relative adhesion to glass can be compared by scratching simultaneous pours on glass, those used for the drying time, gloss and hardness comparisons. Small differences in adhesion are quite readily noted by an operator who has tested a few such pours with a knife or scalpel.

The final test of nail polish wear resistance rests on the satisfaction of the customer. However, the actual wear resistance of a single polish will vary greatly from person to person. When applied by a trained operator to twelve different persons, the same polish may wear well on four, poorly on four and give fair wear on the others. It has also been found that the wear resistance is usually better on the left hand of a right-handed person. Due to the subjective nature of any consumer tests of a product such as nail polish, in making such tests it is necessary to use a rather large number of subjects-at least 100-and to make certain that half use the test polish on the right hand and half on the left. By collecting information concerning drying time, gloss, ease of application and wear from a large group, it is possible to reach a reasonable conclusion concerning the relative merits of two polishes when actually used by the public. Laboratory tests are indicative, but no close correlation has ever been established between these tests and the actual wear of the lacquer when applied to the nails.

Having established the fact that a given lacquer formulation gives the required ease of application, speed of drying, gloss, hardness and wear resistance, it is then necessary to make sure that the lacquer used conforms to this formula. This assurance is made by testing the lacquer for viscosity, total solids, drying time and film properties on glass. If the lacquer meets the specifications which have been set up in connection with these tests, then the purchaser may be assured that the nail polish will perform in the manner expected.

1 P. A. Thomasset, Proc. Sci. Sec., Toilet Goods Assoc. 3, 5 (1945).

Baby Products Boom in Canada

Canada's record birth rate of 320,815 in 1946 has led to a boom in baby product and baby wear business, Montreal statisticians declare. While city statisticians are counting babies, city baby wear and cosmetic dealers are enjoying the business they are bringing. One firm has indicated that two factors have contributed to the increase in its business in the last few years; increased births and increased costs.

"The steadily increasing numbers of babies is a large factor in our business." baby products dealers say. "Although baby lotions, oils, powders and creams have always been available, they are more and more in demand."

Hundreds of Montreal women are now purchasing layettes to send abroad to their friends and relatives. Another factor in the baby business boom is that "young modern-minded mothers insist on giving their babies a cosmetic treatment" as one baby product salesman put it. This may explain the big sale of lotions, powders and creams.

Dackaging



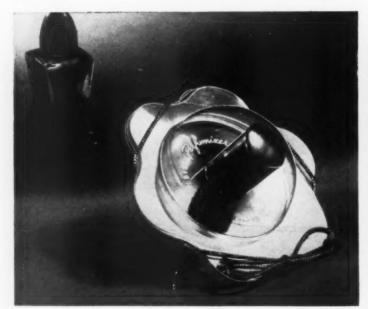
PRINCE MATCHABELLI

PRINCE MATCHABELLI: Prince Matchabelli's doll-like hat is shiny black and trimmed with veiling and bright cerise ribbon. Its crown conceals two miniature bottles of perfume, Stradivari and Russian Easter Lily.

DeVILBISS: The new DeVilbiss half dram purse size atomizer comes in a transparent ball of lumarith: The wide scalloped edges of the two drawn half globes are tied together with a gold metallic cord.

ANN HAVILAND: The new Ann Haviland "dressed up" package boxes her powder. A transparent package reveals the really wearable corsage which accompanies Ann Haviland products.

DeVILBISS



50 January, 1948

ANN HAVILAND



The American Perfumer

SCHIAPARELLI

SCHIAPARELLI: Schiaparelli offers a new two ounce bottle of Shocking Eau de Cologne. The new bottle makes its appearance with a Valentine promotion of heart shaped Shocking soap and a miniature dram bottle of Shocking perfume held together with a Shocking ribbon

PRINCE MATCHABELLI: The very pink of fashion is Prince Matchabelli's Pretty Pink. The lipstick and face powder are packaged in delicate aqua and tied together with a Pretty Pink bow.



PRINCE MATCHABELLI

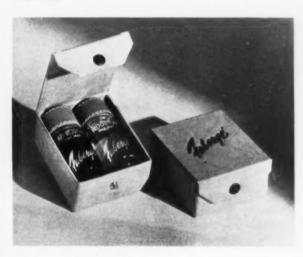
FABERGE: Faberge designed a new Men's Set . . . Aphrodisia For Men . . . Woodhue For Men. The twin flacons are topped in saddle sewn pigskin and teamed up in a tan gift box.

DERMETICS: Dermetics "Beauty Thru The Years" box is soft ivory, printed in gold and deep coral with a black accent. Lining of the box and cover are deep coral to set off the whiteness of the product in its clear glass containers.



DERMETICS





SESP

& Essential Oil Review

Factors Limiting Perfume in Use

The permanence of a perfume used in toilet preparations may depend on the many factors affect-

DR. ALBERT B. PACINI* ing the ingredients

S OME of the ingredients of perfume compounds have the desirable property of overcoming the brittleness of inflexibility of gum, resinous, or plastic films, occurring, for instance, in wave sets, liquid lip rouges, cover marks or nail enamels.

In some cosmetic preparations, the solvent effect of essential oils and other aromatic ingredients can often be utilized to a marked extent. For instance, in the case of lipsticks and rouges the perfume compounds is a factor in solubilizing bromo florescic acid, universally used as a basic stain.

A goodly number of cosmetic ingredients have decided odors; some have the tendency to absorb and retain odors, and some have the chemical tendency to develop unpleasant odors when in contact with certain body secretions.

SOLUBILITY

Many cosmetic preparations have high water content. It is important, therefore, to consider the behavior of the projected fragrance in the presence of water. Relatively few available perfume ingredients are water soluble, and these few in general are only soluble sparingly. Obviously, a perfume, toilet water or cologne having water alone as a vehicle would have very limited application. The available water soluble odors alone, if compounded with water, would result in an aroma which, based on present standards, would be considered somewhat on the weird side.

Fortunately, the solubility of perfume bodies in oils is high and satisfactory, and as a large proportion of water bearing cosmetics are emulsions and also contain oil, our limitation is seen to be less severe than it appeared at first. On the other hand, while the odor bodies are quite oil soluble, their vapor pressures in the oil solution are relatively low, and the emission of odor is thereby curtailed. The ideal solvent for odorous bodies is alcohol. Its worst drawback is its own odor which, however, can be overcome to a fairly satisfactory extent.

COLORS AS INDICATORS

One of the most annoying limitations in the choice of odorous bodies is the fact that same of the certified colors used in cosmetics act as indicators. After completing the careful matching of a shade of face powder, an operation which is always vexatious, one is sometimes disagreeably surprised to find that upon the addition of the perfume the shade changes, sometimes at once, in some cases taking several months. Part, at least, of this phenomenon is due to acidity or alkalinity of the perfume compound per se, or developed after possible reaction with one or more of the ingredients of the powder. The same occurs at times with certain lipsticks and dry rouges. Acidity developing from perfume compounds by hydrolysis in the presence of water, such as the breakdown of acetate esters may at time cause the breaking of a cosmetic emulsion. These things usually do not occur at once, but take their own time developing, and blossom forth at the most inopportune moments.

The coefficient of surface tension of a perfume compound can be vitally important at times. A striking example is the effect of terpineol which has the unpleasant habit of breaking emulsions. Apparently, its action is to alter the interfacial film surrounding the droplets thereby causing them to coalesce, thus destroying emulsification. An example is the action of some perfume compounds in reducing the lathering quality of soaps. Some perfume compounds seem to have an almost fatal effect upon shampoos and shaving creams, making a tremendous reduction in their foaming powers.

We have already seen some of the effects on the cosmetic; let us consider some reactions which may affect the perfume. Since perfume compounds consist of a large number of varied types of chemical compounds; simple hydrocarbons, alcohols, aldehydes, ketones, lactones, esters, ethers, acids, phenols, and others; and cosmetics are also compounded of a varied assortment of chemical bodies, the process of mixing a perfume and a cosmetic should be expected to, and very generally does, result in a number of chemical reactions.

Water is a very common and necessary constituent of many cosmetics, and acts directly or indirectly on hydrolysable chemical compounds; for instance, esters, which are split into the corresponding alcohol and acid. Obviously, the odor value of methyl salicylate is not benefited by a breakdown into methyl alcohol and salicylic acid. This decomposition is accelerated by increase of temperature, and by exposure to sunlight.

Saponification is a similar process, but much speedier.

[•] Prince Matchabelli, Inc

Some esters, in the presence of alkali, break down into the corresponding alcohol, and the salt of the component acid. This occurs in borax creams, soaps, shampoos, depilatories, and other alkaline preparations.

Aldehydes and certain other chemical compounds have the tendency to polymerize. The resulting polymer is in many cases a body with little or no odor value. Under certain conditions, which have not been too carefully studied, this tendency is accelerated, in some cosmetic preparations, and becomes a source of trouble.

Many attempts to cover the odor of sulphide depilatories are dismal failures because of the formation of sulphur alcohols or mercaptans.

In the perfuming of face powders, tales, and similar preparations, the perfume is spread over the surface of many millions of powder particles, and therefore subjected to a vastly intensified exposure to oxidation and selective evaporation. Thus, the character of a fine perfume may be altered completely, and often for the worse.

In view of these considerations, it is obvious that since a perfume formula depends for its odor upon a large number of diverse components each of which contributes its individual quota to the integrated bouquet, the net result of mixing it with a cosmetic preparation is almost certain to result in a number of chemical changes. It is too much to expect then, that if a certain bouquet, which is successful in an alcoholic extract or toilet water is introduced into other toilet preparations such as soap, cream, lipstick that the odor will be identical throughout the line. In many cases the odor will be only reminiscent of the original bouquet. There are a few instances where the original bouquet was, either fortunately, or by design, so compounded that it held true throughout a number of items, but a 100 per cent score is not, to my knowledge, on record.

It rarely happens that a perfume may be planned at the outset to cover an entire line of toilet preparations. If the first item manufactured is a soap, the chances are better, because soap perfumes are, by their very nature, rugged from a chemical standpoint.

OVER-PERFUMING

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The over-perfuming of a cosmetic carries several dangers. If it is done, all of the disruptive effects on the cosmetic and on the perfume are magnified, and there is the added risk of physical irritation. One per cent by weight of perfume in any cosmetic is rarely exceeded, and usually, especially in the case of powerful odors, considerably less can be used to good effect. If more than 1 per cent is necessary, it is safe to predict that the raw materials in the cosmetic are injudiciously chosen and the formula should be carefully reviewed.

As a rigid rule, the perfume compound, consisting as it does of many volatile ingredients, should be introduced into the toilet preparation at the lowest possible temperature. In the manufacture of creams, for instance, the perfume compound is usually introduced after emulsification and partial cooling, but before the cream has reached a viscosity where the thorough dispersion of the perfume compound would be doubtful. This temperature usually works out at about 40 deg. C., and in some cases, as in thin creams and lotions, even lower. Lipsticks require a higher temperature, and powder perfuming is done at room temperature.

It is, of course, essential that the perfume be homo-

geneously distributed throughout the cosmetic, and somewhere in its formula should be one or more ingredients which have affinity for, and, therefore, bind the perfume in the mass.

VACUUM-FILLING

The finished cosmetic is certain to lose a certain amount of perfume if it is submitted to reduced atmospheric pressure as in the case of vacuum filling. Such operations should be carried out with dispatch. Filtration should be carefully carried out from the standpoint of possible action on the perfume. Finely divided materials, mixed with the liquid before filtration, may be selectively adsorbant; and highly efficient filter pads have a tendency to separate out special constituents. Filtration of the open funnel type. because of its slowness, allows exposure to evaporation for a considerable period of time. Rapid pressure filtration is preferable from every point of view.

Generally speaking, the addition of the perfume compound should be timed so as to be the last manufacturing step, or as near the last as possible.

As the ultimate destination of a perfumed cosmetic is some portion of the human skin, it is well to consider the possible consequences which may follow.

There are certain chemical compounds which, when applied full strength, will produce irritation. When direct irritation does occur, it is usually found to be proportional to the concentration of the substance, and generally there is a threshold of concentration below which irritation does not ensue. Also, irritation has been traced back to imperfect distribution. If at all possible, it is advisable to avoid irritation by careful planning of the original perfume formula.

ALLERGIES

Allergies have come to the front very markedly of late. They usually involve substances which are not primarily irritants, and which do not ordinarily irritate the majority of users. Because of possible legal responsibility, and to strengthen the manufacturer's position of exercising vigilance over the excellence of his product, it is advisable to carefully avoid the use of known allergens.

By far the greater number of perfume ingredients are active solvents, and will de-fat the tissues if persistently applied thereto. As the majority of women in this country are afflicted with "dry skin," it is important that an excess of perfume in a cosmetic be strictly avoided, and that the perfume formula bear a preponderance of less active fatsolvent ingredients.

Attention has been directed of late to cases in which perfumes have been shown to be the cause of staining and discoloration of the skin, especially after exposure to intense light. The process by which this discoloration is brought about is little understood.

As many perfume ingredients act as mild irritants, their use on the skin has the effect of stimulation by topically increasing circulatory activity.

GERM LIFE AND GROWTH

A rather general property of many perfume ingredients is their ability to kill germ life and inhibit germ growth. Tested by the phenol standard, many essential oils have a bactericidal value above phenol itself. Great care should be exercised as to the claims made for these products. Be-

sides anti-bacterial activity some perfume ingredients have shown results in killing specific non-bacterial organisms responsible for skin troubles. Care should be exercised on claims for this value as well as for anti-bacterial value.

Perfume ingredients in some instances have definite detergent properties, probably, mainly because of their solvent action on grease and other skin debris. They therefore will augment the cleansing action of certain creams, lotions, and soap-like cosmetics, although it must be remembered that most of them actually detract from the lathering qualities of soaps and shampoos.

PERMANENCY

The permanence of a perfume in toilet preparations is affected by many factors. As a rule the chemical reactions between the ingredients in a perfume formula, or between them and the ingredients of the cosmetic in which it is used, are not sudden, but in the main slow and gradual. None-the-less, they are definite and sometimes startling. It is a good rule on embarking on a new preparation, to allow ample time for a shelf test. Six months is none too much. The factor of temperature is influential on shelf life, and tests should, if possible, be carried out not only at high and low practical temperatures but also under conditions where frequent temperature changes occur. The changes should in some cases be gradual, and in some cases sudden.

Much information has been collected and is available on the discoloring effect of perfume ingredients on certain cosmetics. The main items likely to suffer are creams, lotions and soaps. This possible effect should be foreseen and careful formulation is essential to prevent it.

EXPOSURE TO HEAT

One of the chief enemies of perfume is heat. Where cosmetics are exposed to heat in use, such as permanent wave preparations, hot face packs, bath preparations and suntan preparations, especial consideration must be given the perfume formula to the end that it should be as heat stable as possible in the circumstances of use.

Finally, most careful observation of all the foregoing details can all be set at naught if the product is not properly protected by a suitable package, and the package or the product is never more effective than its closure.

Odor Through Heat Radiation

A new theory on the sense of smell was presented at a recent meeting of the National Academy of Science by Dr. Lloyd H. Beck and Dr. Walter R. Miles, of Yale University.

According to this new theory, the sense of smell is activated by absorption and reflection of radiated heat by the chemicals known as aromatic.

Extensive tests were carried out on cockroaches, using oil of cloves as the odor source. When the vapor was pulsed through an air tight chamber, so that no trace of odor could enter the chamber containing the cockroaches, 24 per cent showed sensatory reaction. When the oil of cloves vapor was introduced direct into the chamber containing the cockroaches 26 per cent showed a reaction.

When the experiment was conducted upon bees, two

similar sealed chambers were placed side-by-side. Each chamber contained honey. Each contained a window with the difference that one contained a filter capable of filtering out infra-red radiation. Bees from a nearby hive clustered about the clear window ignoring the window fitted with the filter.

In their study, Drs. Beck and Miles discovered that the vapors capable of producing odor have the ability of absorbing infra-red bands with wavelengths between 7½ and 14 microns in length.

Heretofore, several theories have been advanced on smell. Included in them are that smell is produced through chemistry and through vibration. It is accepted that the olfactory cells are pigmented and that the surrounding membranes are light pink.

According to Drs. Beck and Miles, there is a difference in temperature between the two areas, so that heat waves are radiated across the air stream. When odor vapor is present in the air, it absorbs certain wavelengths, thus producing the sense of smell.

More work remains to be done in this field. It may lead to smell spectroscopy.

British Aromatic Plants Nurseries

We have been advised that the British perfumery industry has encouraged efforts to develop nurseries where aromatic plants can be grown for perfumery manufacturing purposes. This is a relatively new development in British practice. One of the most interesting of these experiments is centered around Royal Deeside, holiday home in Scotland of the King and Queen. There a perfumery manufacturing company is experimenting with lavender production, and the development of other aromatic plants from which essential oils are to be extracted for use in the production of toiletry specialties. This company began work in Eanchory, on Royal Deeside, in the Highlands of Scotland some years ago. War-time restrictions prevented the development of the project until 1946. As a toilet water, Dee Lavender is rapidly becoming a well-known product, and its distinctive label, depicting a mountain scene in the upper reaches of the Dee, reflect the cool freshness of the perfume itself.

CULTIVATION OF LAVENDER

It is a feature of the policy of Ingasetter to promote the cultivation of lavender on Deeside, and to this end experiments are being carried out to ascertain the most suitable variety of lavender for growing in this district, having regard to the climate and soil, and to their influence on the yield and quality of the oil distilled from the flowers. Early results from these experiments are said to be promising.

The preparation of the essential oils and the aromatic substances from other plants grown in the Highlands will, it is planned, be undertaken by Ingasetter, and it is felt that a considerable field for research exists in this sphere.

New factory premises have been built for the company near Banchory, overseas contacts have been made, and the company is particularly anxious to develop export business. Plans are on hand for developing the production from this area extensively.



Root Beer Flavor Components

In virtually all root beer flavor formulations, essential oils and aromatic chemicals play an interesting part.

MORRIS B. JACOBS, Ph.D.*

IN A previous paper in this section, it was explained that root beer flavoring components could be placed into two principal categories, namely, (1) botanical or plant components and (2) essential oil components. The chief botanical or plant components which are employed in root beer flavors compositions were detailed and described in that article. Actually the essential oils are also of plant origin but the distinction between the use of the plants and plant parts themselves and the oils derived from them is useful.

There is also another category of root beer flavor ingredients which we have to consider. These are the aromatic chemicals which are closely related to the essential oils which are commonly employed.

ESSENTIAL OILS

It is to be noted that most of the essential oil ingredients which are employed in root beer formulations are listed in the United States Pharmacopeia. The main flavor note desired in root beer other than those obtained from the botanical ingredients previously described is wintergreen. Nearly all the other essential oil components and aromatic chemicals used in such formulations serve as modifiers and blenders of the wintergreen note.

Wintergreen Oil.—Natural oil of wintergreen is prepared

by the maceration in luke-warm water and subsequent steam distillation of the leaves of the evergreen. Gaultheria procumbens Linné (fam. Ericaceae). The northern oil comes mainly from Pennsylvania and New England; the southern oil comes from Tennessee and North Carolina. This essential oil has its characteristic wintergreen odor, a berry flavor, and a sweet taste. Its specific gravity is in the range 1.176-1.182. Gaultheria type oil is optically active but the rotation should not exceed —1.5 degrees in a 100-mm. tube at 25 deg. C. This essential oil contains over 98 per cent of methyl salicylate, nevertheless it is said to give certain softer flavoring effects not obtainable with the synthetic material.

Sweet Birch Oil.—Oil of sweet birch is prepared by the maceration in warm water of the twigs and bark of Betula lenta Linné (fam. Betulaceae) and the subsequent steam distillation of the liberated oil. The oil is found principally in the bark. The U. S. P. XII (1942), places all the oils knowns as oil of gaultheria, oil of wintergreen, oil of betula, oil of sweet birch and methyl salicylate under the general heading of methyl salicylate making little distinction between them. The principal source of northern sweet birch oil is Pennsylvania, while the southern oil comes from the tree known as the black birch from the same regions as wintergreen oil. Betula oil has almost the same physical characteristics as wintergreen oil, since it too consists of

over 98 per cent of methyl salicylate. It is, however, optically inactive.

Sassafras Oil.-Oil of sassafras is a vellowish to reddish yellow liquid which is obtained by steam distillation from the root of Sassafras albidum (Nuttall) Nees (fam. Lauraceae). It is found in the Appalachian part of Ohio and Kentucky. This oil should have a specific gravity of 1.065-1.077 at 25 deg. C.: it should have a refractive index of 1.5250-1.5350 at 20 deg. C .: and its optical rotation in a 100-mm. tube at 25 deg. C. should be not less than + 2 degrees nor more than + 4 degrees. It is relatively insoluble in water but is soluble in 95 per cent alcohol. Two volumes of 90 per cent alcohol will dissolve one volume of the oil. Sassafras oil is widely used as a flavor component in root beer flavorings but in addition is used for flavoring medicinal preparations and in perfumes for soaps and detergents. Safrole is a principal component of oil of sassafras since it comprises 80 per cent of the oil. Other componente are eugenol. camphor. phellandrene. safrene, and pinene.

Clove Oil.—Oil of cloves is the product obtained by the steam distillation of the dried flower buds of Eugenia caryophyllata Thunberg (fam. Myrtaceae) (Caryophyllus aromaticus L.) Its principal sources are Zanzibar and Madagascar. It is a colorless to pale vellow oil having a specific gravity of 1.038-1.060 at 25 deg. C., a refractive index of 1.5300-1.5350 at 20 deg. C., and an optical rotation of not more than -1 degree in a 100-mm. tube at 25 deg. C. It has a characteristic aromatic odor and a burning taste. The oil is insoluble in water and only slightly soluble in aqueous alcohol mixtures containing up to 60 per cent alcohol but its solubility increases rapidly with increase in alcohol concentration, thus two volumes of 70 per cent alcohol will dissolve I volume of the oil. Eugenol must comprise not less than 82 per cent of clove oil for the oil to meet U. S. P. XII requirements. Other components are benzyl alcohol, methyl salicylate, furfuryl alcohol and some of its derivatives, caryophyllene, and other alcohols and eugenol derivatives.

Nutmeg Oil.—Oil of nutmeg or oil of myristica is the essential oil obtained by steam distillation of the dried kernels of the ripe seed of Myristica fragrans Houttuyn (fam. Myristicaceae). It is a colorless to light yellow liquid with a nutmeg odor and a spicy taste. The Dutch East Indies and the West Indies are the main sources. Nutmeg oil has a specific gravity of 0.880-0.910 at 25 deg. C.; its refractive index is 1.4740-1.4880 at 20 deg. C., and it has an optical rotation of not less than + 10 degrees nor more than + 30 degrees in a 100-mm. tube at 25 deg. C. The oil is insoluble in alcohol-water mixtures containing as much as 70-80 per cent alcohol. Three volumes of 90 per cent alcohol are required to dissolve 1 volume of oil. While the main components are eugenol and isoeugenol, other components also present are safrole, terpineol. borneol, linalool, some terpenes. and geraniol.

Anis Oil.—Oil of anise is defined as the colorless to pale yellow essential oil obtained by the steam distillation of the dried ripe fruit of *Pimpinella anisum* Linné (fam. *Umbelliferae*) or of the dried star-shaped fruit of *Illicium verum* Hooker fillius (fam. *Magnoliaceae*). The main source of the former is the eastern part of central Europe, western

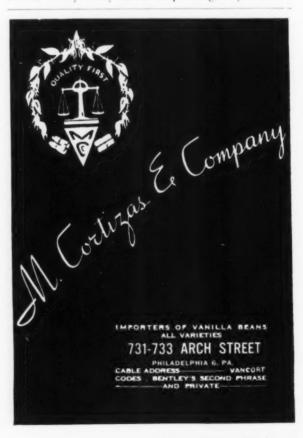
Russia, and Spain, while the latter comes chiefly from Tonkin, French Indo-China, and from Kwangsi, southeastern China. The latter is often termed oil of star aniseed because of the shape of the fruit. The oil has a density of 0.978-0.988 at 25 deg. C.: its refractive index is 1.5530-1.5600 at 20 deg. C.; and its congealing point is not below 15 deg. C. Anise oil is insoluble in water and aqueous alcohol mixtures containing 70-80 per cent of alcohol but its solubility increases with the alcohol concentration and one volume of the oil is soluble in 3 of 90 per cent alcohol. The principal component is anethole. Some other components are pinene, phellandrene, dipentene, I-limonene, methyl chavicol, anisaldehyde, anisic acid, hydroquinone ethyl ether, and methyl chavicol.

Among the other essential oils which are used in root beer formulations are lemon oil, sweet orange oil, oil of cassia, and oil of cinnamon. These essential oils have been discussed and described in several articles published in the past in this section.

AROMATIC CHEMICALS

It will be noted that each of the aforementioned essential oils has a major component. It is common practice to use some of these materials as their synthetic analogues or their purified isolates in root beer formulations.

Methyl Salicylate.—Synthetic methyl salicylate, HOC₆-H₄COOCH₃, or, as it is often termed, artificial oil of wintergreen, is made by the esterification of salicylic acid with methyl alcohol in the presence of sulfuric acid. Its odor, taste, and flavor characteristics are analogous to the natural oil. Methyl salicylate has a specific gravity of 1.180-



1.185, boils in the range 219-224 deg. C., has a refractive index of 1.5350-1.5380 at 20 deg. C., and is optically inactive. This ester is only slightly soluble in water or even aqueous alcohol solutions containing 60 per cent or less of alcohol but it becomes increasingly soluble in solutions containing greater percentages of alcohol, one volume of the ester being soluble in 7 of 70 per cent alcohol at 25 deg. C.

Ethyl Salicylate.—An analogous ester which may be mentioned at this point, although it does not occur to any great extent in essential oils, is the ethyl homologue of methyl salicylate, namely, ethyl salicylate, HOC₆H₄COOC₂H₅. This is a colorless liquid boiling at about 234 deg. C. Its wintergreen odor is considered finer than that of the methyl compound. It is prepared in an analogous manner. Ethyl salicylate has a specific gravity of 1.13 at 25 deg. C. and it congeals at about 1.0 deg. C. Ethyl salicylate is insoluble in water but is miscible with alcohol.

Safrole.—Safrole, or in more precise chemical nomenclature, 4-allyl-1,2-methylenedioxybenzene, is a colorless to slightly yellow liquid with a pleasant sassafras odor and flavor. Safrole has a spacific gravity of 1.096-1.105; it melts at 10-11 deg. C.; it boils at 232-234 deg. C.; and it has a refractive index 1.5383-1.5385. Safrole is insoluble in water and is soluble in alcohol.

Eugenol.-This aromatic chemical, also known as ter-

peneless oil of cloves, 4-allyl-2-methoxyphenol, is a yellow viscous liquid with an agreeable clove odor, a bitter, sharp, burning taste, and a marked clove flavor. Eugenol boils at 248 deg. C., and has a specific gravity of 0.069-1.072. It is often obtained as a pure isolate by clove oil. This compound is very slightly soluble in water but is soluble in alcohol.

Anethole.—Anethole, CH₃CH:CHC₆H₄OCH₃. is known by a number of other names such as isoestragole, anise camphor, 4-methoxy-1-propenylbenzene, p-propenylanisole. It is a colorless crystalline substance melting around room temperature. The liquid material has a specific gravity of 0.980-0.985; it boils at 234-237 deg. C.; and it has a refractive index of 1.558-1.561 at 25 deg. C. This ether has a strong anise odor and anise flavor which is considered by some to be superior to that of anise oil. It also has a sweet, burning taste. Anethole has been prepared synthetically from anisaldehyde but is often prepared as the isolate from both oil of star aniseed and from oil of anise.

It is soluble in alcohol and in ethyl acetate but is insoluble in water.

Occasionally other aromatic chemicals, as for instance citral are used in root beer formulations but the principal components have been described. The compounding of the botanical ingredients, the essential oil components and aromatic chemical into a root beer formulation will be discussed in a subsequent paper.

Flavored Notes

Top note in a flavor is a matter of considerable importance. It is generally true that only the connoisseur can detect nuances in flavor with any degree of regularity. It is equally generally true that many lay people are impressed with flavor power. Nevertheless in the long run, continued consumer acceptance is achieved more readily by maintaining top note in flavor rather than mere strength.

Drs. Walter R. Miles and Lloyd H. Beck of Yale University have proposed a new theory for the sense of smell. The smell receptors, according to this theory, send out waves in the infra-red part of the spectrum. These waves are absorbed by the material being smelled with a resultant increase in the amount of radiation of that particular wave length. This heat loss is interpreted in the brain as a definite odor. There is a sharp difference between this theory and the customary chemical theory of the sense of smell. The radiation theory of smell is analogous to the theory explaining the action of cold receptors in the body. These cells give an impression of cold because they give up heat to the cold body touching the cold sensory cells.

The course, Technology of Food Flavors, Colors, and Synthetic Food Additives is to be given again by Professor Morris B. Jacobs at the Polytechnic Institute of Brooklyn during the Spring semester, 1948. Registration takes place at the Polytechnic Institute, 99 Livingston Street, Brooklyn 2, N. Y., the week of Jan. 26, 1948.

Who can supply a hexenal? -M. B. J.

Cuba's Sugar Production

After an all-time record sugar production in 1947, Cuba will have enough cane in 1948 for another large crop. Weather conditions up to the middle of October were favorable for the growing season, although adverse conditions may still occur before the harvesting of the 1948 crop is completed.

Cuba's 1947 crop was equivalent to 6,448,320 short tons of raw sugar, according to final data from the Sugar Stabilization Institute.

The total acreage in cane and the acreage harvested are estimated at 2.850,000 and 2,730,000 acres, respectively. The quantity of cane harvested is reported by the Ministry of Agriculture as equivalent to 52.575,060 short tons.

Barring unusual developments there should be enough cane to produce from 5,800,000 to 6,000,000 tons of sugar in 1948. There have been few new plantings this year for the 1949 crop because it is generally realized that the long-time prospect will make it necessary to reduce production. Another important factor is the very high cost of making new plantings. A large part of the acreags of cane that can be harvested in 1948 will go out of production by 1949.

Manufacture of Chewing Gum

The author discusses the problems and the processes

M. K. COOK of manufacturing chewing gum

THE ideal base for chewing gum is chicle, a crude gum latex obtained from the tree, Achras sapota. Wild forms of the tree are native to many tropical countries and possess various names such as zapote chico, nispero, and sapodilla. The trees grow to a height of 25 to 40 feet and bear edible fruit for which they were originally cultivated.

Mexico generally offers the best commercial grade of chicle, grown principally in Campeche, Yucatan, Tuxpam, and Vera Cruz. Fine chicle also comes from British Honduras and Guatemala. The chicle tree is tapped with a machete by the chicleros, or chicle workers. The type of incision is governed by the latex yield desired and the condition of old tappings. The latex is gathered, bulked, coagulated, kneaded, and finally formed into blocks having an average moisture content of 25 per cent. Well prepared chicle contains a minimum of debris, normally found in other crude gums consisting of twigs, leaves, and charcoal.

CHICLE SUBSTITUTES

Previous to, and especially during, World War II, many types of other crude gums were utilized as extenders of high grade chicle. To mention a few, there are Columbia and Panama perillo, Brazilian sorva, Venezuelan pendare, and Peruvian leche caspi. Regardless of the variety of gums used, blends did not duplicate the excellent chewing characteristics of high grade chicle unless a definite percentage of the latter was added. Chicle, seemingly, contains the right chemical composition to make commercially ideal chewing gum.

Unfortunately, chicle is subject to substantial price fluctuations and difficulties in transportation as well as unpredictability of supply. This has led manufacturers to seek domestic substitutes, both natural and synthetic. The use of other natural gums as chicle extenders is disadvantageous since they, too, are controlled by geographic and economic factors.

A breakdown of chicle reveals the presence of two main groups of substances—gutta and resins. The gutta group has the elastic properties and comprises, it is believed, polymers of isoprene. The resin group consists of triterpenes and sterols. Chicle also contains carbohydrates, waxes, tannins, and mineral matter, partly in the form of calcium compounds.

Knowing this, manufacturers have tried with varying degrees of success to duplicate the desirable properties of chicle by means of synthetic resins and rubber. The choice

of materials is limited to non-toxic substances. Among the many hundreds of compounds tested, the vinylite resins such as polyvinyl acetate and non-toxic butadiene-styrene latices, deserve mention. This resin-rubber combination in conjunction with chicle, wax, and other softeners closely approximates a conventional chewing gum base.

PLASTICISERS

A variety of plasticisers are extensively used to help reduce the viscosity of the rubber blend to a desirable consistency and to improve the texture. Very small percentages are needed to achieve a pleasing softness. The use of excessive amounts will frequently cause stickiness or lack of cohesion in the wad of gum.

There are innumerable softening agents suggested for use in chewing gum preparation, and some of the more common substances are:

Lecithin	Carnauba wax
Lanolin	Candelilla wax
Hydrogenated cocoanut oil	Paraffin
Hydrogenated cottonseed oil	Beeswax
Mineral oil	Stearic acid
Olive oil	Glyceryl monostearate
Vaseline	Glycerine
	Propulene alveol

FLAVORING

One reason for the widespread popularity of chewing gum is the careful selection of appealing flavors by the manufacturer. For the most part flavors consist of essential oils used either singly or in combination with other natural and synthetic oils. Peppermint, spearmint, sweet birch, anise, and cassia are the natural oils most frequently used in chewing gum manufacture. Among the synthetics are methyl salicylate and anethole, which are utilized in flavor compounding as substitutes for sweet birch and anise.

Manufacturers make it a sound practice to buy the finest essential oils available. Experience has shown that off-qualities of an oil are frequently augmented in the finished product. This may be detected either immediately after manufacturing, or during aging. Extended bulk storage of oils of questionable quality may also result in substantial financial loss because of deterioration. The purchase of inferior oils for use in chewing gum is false economy.

The presence of weeds in peppermint and spearmint crops will often contribute a disagreeable odor and taste to

the distilled oil. This may be attributed to the grower's carelessness in cultivating his field. As little as 1 per cent ragweed oil will produce a very unpleasant weedy or moldy taste in chewing gum.

Fortunately, the disagreeable components of peppermint and spearmint are most often found in the first or lowest boiling fractions of the oil and can be removed by vacuum-steam redistillation. In the case of peppermint oil, the first fraction will contain dimethyl sulfide, an unpleasant-smelling natural component. A first fraction cut of one-half per cent of the total oil will remove practically all of the dimethyl sulfide, and will improve the oil.

The U.S.P. standards for essential oils such as refractive index, optical rotation, specific gravity, and ester number are inadequate to detect certain expert adulterations. It requires vast experience to detect vague off-qualities and to differentiate between sophistication and natural variations in the oil. It is prudent to perform a fractional-vacuum-distillation of a suspected oil and compare the distillation curve with an oil of unquestionable quality.

In flavoring chewing gum it must be understood that essential oils have a distinct softening effect on gum base even though used in very small amounts. At the same time, gum base can affect flavor quality adversely. This holds true particularly in synthetic base material.

Some essential oils used in chewing gum have mild anesthetic properties on the taste buds. This gives rise to an apparently flavorless or weak quality to the gum. However, an insipid quality is more frequently the result of gum base. For even the finest essential oils seem weak and inferior when combined with antagonistic base material. Chicle, on the other hand, shows unusually good flavor retention.

The amount of flavor used in chewing gum is dependent upon gum base and relative taste strength. In general, this varies from 0.7 per cent to 1.4 per cent of the total gum batch. In flavor compounding, consideration must be given to the fact that there are different grades of the same essential oil. Peppermint, for example, can be obtained in types having a pungent menthol background or a sweet, mellow, almost molasses-like quality. Climatic variations, soil differences, and distillation methods all contribute to variations in essential oils. The manufacturer must select according to the particular quality which he is desirous of imparting to the finished product.

The following flavor formulas are basic and can be developed and modified according to individual needs.

(A) Licorice-flavoring for charcoal type gums

1)	Oil of anise Anethole	50 50	-	-
		100		
2)	Oil of anise	100		
3)	Anethole	100		

0.7 to 0.9 per cent flavor is used in total gum batch.

(B) Cinnamon

2)	Oil of cassia natural Oil of cassio natural Oil of cassia synthetic	100 50 50	per	cent	
3)	Oil of cassia Menthol crystals	100 95 5			
		*100			

0.9 to 1.1 per cent flavor is used for total gum batch.

(C) Birch-flavoring for wintergreen or pepsin type gums

1)	Methyl salicylate	100	per	cent	
2)	Oil of sweet birch	100			
3)	Oil of sweet birch	70			
•	Methyl salicylate	25			
	Menthol crystals	5			
		100			

1.0 to 1.3 per cent flavor is used for total gum batch.

(D) Spearmint

	Oil	of	Spearmint Spearmint Peppermint	90 10	per	cent
				100		

0.8 to 1.0 per cent flavor is used for total gum batch.

(E) Peppermint

1) Oil of	Peppermint	100	0 per	cent	
0.9 to 1.1	per cent	flavor is	used for	total	gum	batch

(F) Fruit flavored gum

Oil of Orange Oil of Lemon Oil of Limes *Synthetic Composite	30 20 10 50	per	cent
-1	100		

*The synthetic composite can contain any mixture of the following:

Amyl acetate	Butyl butyrate
Amyl butyrate	Isobutyl acetate
Amyl undecylate	Isobutyl formate
	Methyl butyrate

Most manufacturers prefer to buy a prepared synthetic composite and use it directly or in combination with essential oils. Special attention must be paid to fruit flavored gums since they are prone to deteriorate in the air-tight package. Synthetic flavors will vary in strength, and the amount used must be determined empirically.

FIXATIVES

The problem of flavor fixation is in one respect, not unlike perfume fixation, since in both cases, the volatility of the essential oils is reduced. However, consideration must be given to the fact that taste plays a most important part in chewing gum. For that reason, many fixatives that are otherwise acceptable, cannot be applied. Balsam resins for example, assert their character too strongly to be used in appreciable amounts unless an unusual quality is desired. In flavor compounding, the following substances will satisfactorily serve as fixatives:

Musk xylol Vanillin Coumarin Heliotropin

The musk xylol will dissolve very well in methyl salicylate and can be used with wintergreen, peppermint, and fruit flavors. Fixed composites should be well aged in order to conceal tonal individuality.

BLENDING AND MASTICATION

Considerable variations occur in resin and gutta content of crude gums other than chicle, and blending on a percentage basis is no simple matter. In addition to this, original characteristics may be lost in combination. For example, two hard gums when mixed, may yield a soft, sticky chew.

Crude gums have definite melting points and are handled accordingly. The high melting gums such as the perillos and sorvas are extremely tough and require mastication together with low melting gums. This is done primarily to lower the viscosity of the mass to a chewable consistency.

The blocks of gum are broken into small pieces and loaded into a large mastication kettle equipped with a steam jacket and hot and cold water inlets. Water is added to the kettle and steam is passed through the jacket in order to soften the gums. If mastication were started before this pre-heating process, the great resistance offered by the rubber would probably break the agitators.

After sufficient softening has taken place, the mastication arms are placed in motion and the soft and hard gum combination is mixed to form a homogeneous mass. The gum is subsequently bleached with a weak solution of sodium hydroxide for several hours. It is then washed with hot water for 6 to 9 hours. By this time, practically all the caustic is removed. The excess water is drained from the kettle and mastication started. The amount of mastication is always dependent upon the toughness of the gum mixture.

At the end of mastication, the gum is removed from the kettle and cut into small pieces when hard. It is light in appearance and closely resembles putty.

BLOCKING

Masticated gum is loaded into a hot (120 to 130 deg. C.) mixing kettle together with softer natural gums, including chicle and waxes. It is then mixed thoroughly until free from lumps, and finally evaporated down to a moisture content of 3 to 5 per cent. This product is poured while hot into pans previously sprinkled with moulding starch. When cool, the blocks are removed from the pans, piled on platforms and stored until needed.

The crude gum base mixture contains foreign matter which must be removed either by centrifugalization or with a filter press. A Sharples or De-Laval centrifuge is used industrially and when a gum base is properly handled, practically every coarse particle of foreign matter is eliminated.

Synthetic latices in the liquid form are coagulated in the mastication kettle by means of heat and salt solutions. After coagulation, the latex is combined with waxes, resins and gums. The mass is washed and broken down to the desired viscosity.

PROCESSING

Kettles for the gum making process are essentially steam jacketed mixers. The kettle is warmed and the gum base added and mixed until sufficiently free from lumps. Next, corn syrup and sugar are incorporated in the base. Finally, flavor is poured in and well distributed. The mass is cooled. rolled, scored, and hardened sufficiently, before wrapping. Controlled humidity rooms assure consistent moisture content and prevent "sweating" of the gum.

It is important to use just enough heat to soften the gum base sufficiently for mixing. The addition of sugar and syrup tends to lower the temperature and flavor is added only when the mixture has cooled sufficiently. This minimizes flavor volatility to a marked degree.

CHEWING GUM FORMULAS

1}	Gum Base Diastatic malt 44° Baumé corn syrup Powdered sugar Calcium carbonate	1.0 15.0 60.0 2.0	per	cent
		100.0		
2)	Gum Base Diastatic malt Licorice mass Corn syrup 44° Baumé Powdered sugar	22.0 2.0 3.0 15.0 58.0	per	cent
		100.0		

Add sufficient carbon dust to color black.

3)	Gum Base Diastatic malt	22.0 2.0 5.0	per cent
	Invert sugar		
	44° Baumé corn syrup	13.0	
	Powdered sugar	51.0	
	Cerelose	7.0	
		100.0	
4)	Gum Base	22.0	per cent
,	Diastatic malt	2.0	
	44° Baumé corn syrup	15.0	
	Powdered sugar	60.3	
	Pepsin powder	0.7	
		100.0	
5)	Gum Base	22.0	per cent
-1	Powdered sugar	50.0	
	45° Baumé corn syrup	24.0	(Summer Formula)
	Calcium carbonate	2.0	(
	Powdered starch	2.0	
		100.0	
6)	Gum Base	22.0	per cent
	Powdered sugar	53.0	
	44° Baumé corn syrup	21.0	(Winter Formula)
	Calcium carbonate	2.0	
	Powdered starch	2.0	
		100.0	
		100.0	

During the Summer months, some manufacturers prefer to use a commercial corn syrup of higher Baumé and consequently lower moisture content, in order to minimize the hygroscopic nature of the gum during humid days. During times of sugar shortages, substitutes such as cerelose and mannitol were used as extenders of sucrose. Up to 10 per cent cerelose has been used together with sugar without causing any appreciable sweating of the gum. Finely powdered sugar is used in gum manufacture since coarser grades may contribute a gritty or grainy sensation to the chew. However, coarser grades have been used for dusting the finished stick to impart a more pleasant start. Caramel paste as used by some, adds to the sweetness of the finished product. Traces of diacetyl in the gum batch will give an unusually pleasant character to spearmint and peppermint flavored gums. Diastatic malt also contributes a certain lifting quality to the flavor.

Fillers such as starch and calcium carbonate have been utilized either as deadeners of rubbery chewing gum or as extenders of gum base. For coloring gum, certified food dyes such as erythrosine can be used to give a red tint. Defatted cocoa powder will give unnaturally light gum a natural chicle shade.

RURRLE GUN

During the past few years, there has been tremendous demand for bubble gum. This product is essentially an elastic base which allows for considerable expansion when a volume of air is introduced. Substantial bubbles cannot be blown so long as there is undissolved sugar present in the wad. Preliminary chewing is necessary to dissolve the sugar and to decrease the resistance by vigorous mastication. During this stage, the wad becomes softer since saliva is absorbed and temperature increased to body heat.

In the past, bubble gum has been made with various combinations of jelutong rubber, paracumaron resins, and plasticisers such as vaseline. Today, there are numerous synthetic bubble gum blends offered by organizations who devote their efforts solely to the manufacture of prepared gum base.

CANDY COATING PROCESS

Sheets of scored and flavored gum are seasoned for a week. They are broken into individual pieces and placed in panning machines. These machines may be described simply as rotating drums equipped with blowers so designed as to deliver low humidity air. A solution of diluted commercial corn syrup and cane sugar syrup is added and the drum is set in motion until the pieces receive a uniform coating. A small quantity of flavor is then added and thoroughly distributed. An addition of finely powdered sugar is made at intervals and partially coated gum is removed and allowed to season.

A coating is gradually built up with sugar syrups, starch and gum Arabic and dried rapidly by means of the blowers after each application. A final polish is given to the coated gum by rotating the pieces in drums lined with beeswax impregnated canvas. A good candy-coated chewing gum is uniform in color and thickness and possesses a clean satin sheen.

Sugar Production in Java

Two important sugar-producing regions in the Netherlands Indies—one extending from Cheribon to Semarang along Java's north coast, the other in East Java—have been reoccupied by the Dutch. The 45 sugar mills operating in these districts before the war had an annual output of about 600,000 metric tons or about half the Java crop. It is reported that the mills in East Java and those in the vicinity of Cheribon were found in fairly good condition, but most of those located to the east of Tegal had suffered much damage. According to reports, five sugar mills in the reoccupied zones were completely destroyed, 14 severely damaged, and

one slightly damaged. It is believed that 30 of these mills can be put back into production within a year, and four more can be repaired in time to grind the 1949 crop. Of these 34 mills, 22 are located in East Java, and the others are on the north coast.

Before the war, 85 out of a total of 102 sugar mills in Java were in operation. A number of these remain in Republican hands in sections of east and central Java which the Dutch have not occupied. But no reliable information has become available regarding the condition of the mills in Republican territory. Before the recent advance of the Dutch forces most of the mills were believed to be in fairly good condition, having suffered merely from prolonged neglect. In the meantime, however, a number of them may have been more or less seriously damaged.

In the reoccupied areas it was found that 9000 hectares (22,240 acres) had been set aside for sugar cultivation but that owing to disturbed political conditions in the interior only 5000 hectares (12,355 acres) actually had been planted. If it proves possible to complete the planting soon, there might be enough cane for a 90,000-ton sugar crop in 1948. That figure presupposes a yield of 10 tons per acre, which can be attained only if sufficient artificial fertilizer (ammonium sulfate) is promptly provided. However, since it is unlikely, in the present circumstances, that planting will be completed on time, it is not anticipated that sugar production in Java will exceed 60,000 tons in 1948.

Previous estimates placed the maximum output in 1947 at 25,000 tons. Whether even that modest figure (before the war 1,300,000 tons of sugar were produced annually) can be attained will depend upon whether it will be safe for trained European personnel to return to the mills in the near future. In view of the present circumstances, however, it is doubtful that 1947 production will exceed 6000 tons.

According to the press, more than 150,000 tons of oldstock sugar have been found in East Java. In West Java large quantities of sugar were burned, and only about 10,-000 tons have thus far been recovered. Sugar stocks in the interior are widely distributed, and it will not be possible to move them to the ports until transportation is organized and the roads become safe. At that time, sugar found in the reoccupied sections of East Java will be shipped principally through the ports of Surabaya and Probolinggo.

In view of the small output anticipated in 1947 and 1948, it is expected that a large portion of the recovered sugar stocks will have to be reserved for domestic consumption.—

Foreign Commerce.

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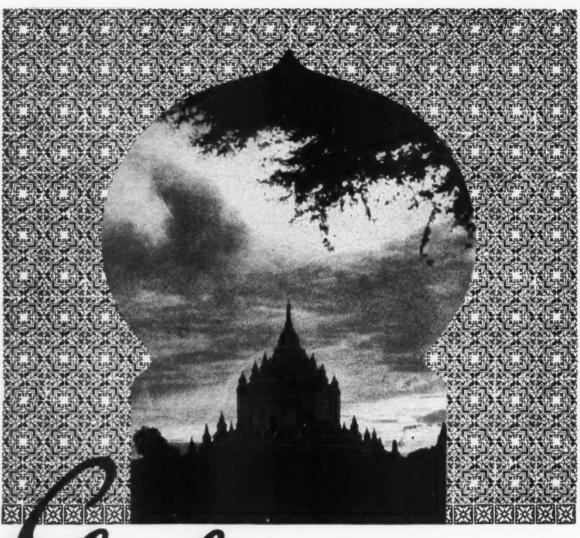
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Illinois Analyzes Soap Buying

THIS analysis is composed of 41 surveys conducted in an identical manner and at the same time by member newspapers of Illinois Daily Newspaper Markets. All member newspapers are located in Illinois, outside of Chicago. The information for this consumer analysis was gathered in the last week of May and the first week of June in 1947 in all cities.

DETERGENTS

Because of difficulty in phrasing the question on detergents, this tabulation was compiled from questions on soap products and cleansers. Users of detergents came to 55.5 per cent of those questioned, non-users to 44.5 per

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Brand															F	er Cent	Number of Families
Dreft																64.1	143,477
Vel													6.			31.6	70,843
Breeze												0			4	4.8	10,725
Swerl																	8.665

Soap products used for general household laundry were:

,		Number
Brand	Per Cent	of Families
Oxydol	23.7	92,346
Rinso	. 19.8	76,942
Duz		72,352
Fels Naptha Bar	. 11.9	46,367
American Family Flakes	. 10.4	40,532
Super Suds		24,623
American Family Bar		9,452
Ivory Flakes	. 1.5	5,640
Ivory Bar		5,057

SOAP FOR DISHES

Soap products used for dishes were:

		Number
Brand	Per Cent	of Families
Dreft	. 26.5	106,249
Vel	15.9	63,918
Ivory Bar	. 10.1	40,646
Duz	7.8	31,899
Ivory Flakes	. 7.3	29,090
Rinso		22,189
Oxydol	. 5.4	22,108
Lux Flakes	. 3.3	13,402
American Family Flakes	. 2.8	11,395
Ivory Snow	2.5	10,031
Breeze		9,389
Swerl	2.1	8,466
Super Suds	1.9	7,664
Chiffon Flakes		7,222
Swan	. 1.3	5,216

SOAP FOR FABRICS

Soap products used for fine fabrics were:

Brand Per Cent	Number of Families
Lux Flakes 25.6	102,707
Dreft 25.1	100,501
Ivory Flakes 18.7	75,155
Vel 10.7	43,072
Ivory Snow 6.3	25,346
Ivory Bar 5.4	21,616
Chiffon Flakes 1.9	7,499
Duz 1.6	6,457
Breeze 1.5	6,096

CLEANING SOAP

Soap products used for painted walls, floors and woodwork were:

		Number	
	Brand	Per Cent	of Families
	Spic & Span	63.1	243,937

Soilax	12.8 49,453	
Ivory		
HRH		
Oxydol		

BATH SOAP

Toilet Soans used for the bath were:

to composition and and		Number
Brand	Per Cent	of Families
Lux	. 20.5	82,706
Palmolive	. 17.5	70,661
Ivory	15.5	62,241
Lifebuoy	14.5	58,293
Sweetheart		42,703
Camay	9.1	26,781
Woodbury	. 4.8	19,136
Cashmere Bouquet		18,975
Swan	2.4	9,749
Wrisley	. 2.3	9,628

FACE SOAP

Toilet soaps used for the hand and face were:

		Number
Brand	Per Cent	of Families
Lux	24.9	100,311
Palmolive	. 17.8	71,547
Ivory	12.6	50,679
Camay	11.9	47,980
Sweetheart		46,359
Woodbury	. 7.2	29,126
Cashmere Bouquet	5.9	23,849
Lifebuoy	3.9	15,711
Swan	1.8	7,332
Wrisley	1.2	4,995

LIQUID SHAMPOOS

Liquid shampoos were used by 62.3 per cent of those questioned. Brand preference was as follows:

** *	
Number	
of Families	
60,980	
53,925	
25,709	
14,503	
9,465	
8,611	
6,930	
4,549	
3,695	
3,327	
3,205	
	60,980 53,925 25,709 14,503 9,465 8,611 6,930 4,549 3,695 3,327

Technical Mission to Venezuela

The Food and Drug Administration has announced that a technical mission is to go to Venezuela to investigate vegetable oil resources there. The mission is under the direction of Dr. K. S. Markley, head of the Oil, Fat and Protein Division of the Southern Regional Laboratory of the Department of Agriculture. Both industrial and wild oil-bearing plants will be studied.

Soap Association Announces Program

The Association of American Soap & Glycerine Producers, Inc., has announced the program to be presented at its annual convention to be held at the Waldorf-Astoria Hotel, January 28 and 29.

Secretary of Agriculture Anderson is to be the guest speaker at the banquet given on the evening of January 29. Paul V. McNutt will speak on the Philippines at luncheon on the same day.

Dr. Morris Fishbein, editor of the Journal of American Medical Association, will talk on a Clean America at luncheon January 28, and Leo M. Cherne, executive secretary of the Research Institute of America will give The Business Outlook for 1948 during the morning of the same day.

A panel on fats and oils, consisting of Charles Lund, of the Department of Commerce, and Fred Rossiter and George Prichard, of the Department of Agriculture, will be held on January 29. Other speakers at that time will be: Kenneth P. King, E. I. du Pont de Nemours & Co., "Synthetic Organic Detergents in 1948"; and J. Frank Perrin, Office of Defense Transportation, "Transportation in 1948."

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Various group programs will be held on the morning of January 29, covering such subjects as bulk, chip, flake and powdered soap, and glycerin.

A cocktail party will be held from 5:30 to 7:30 on January 28, with the Magazine Bureau of the Periodical Publishers' Association as host. A buffet breakfast, beginning at 7:15 will be given on the 29th, with MacFadden Publications as host. Following the banquet, a full one hour program will be presented by the four major networks, presenting some of the leading stars of the air.

Soap Manufacturers to Meet

The annual meeting of the Potash Soap Association will be held Jan. 27, 1948, at the Hotel Biltmore, New York, N. Y.

Soap Situation in U.K.

Recent reports state that soap production in the United Kingdom, which during the war years was about 80 per cent of prewar output, has declined to 63 per cent of the prewar figure. This reduction is attributed largely to deterioration of the raw material position and to rigid export control. British soap manufacturers are trying to influence the Board of Trade to permit more exports, particularly to dollar and other hard-currency countries, but the raw material situation makes this difficult.

Soap may be exported from the United Kingdom only under license, because of the oil and fat shortage, the official attitude being that it is impracticable to send abroad articles badly needed at home.

Certain sources in the British soap industry say that oil and fat production cannot keep up with demand. As the standards of living are raised in the Far East, in India, and in Africa, more soap is used by the people in those regions.

Therefore, an ever increasing demand is expected, with the result that some circles forecast that the oil-and-fat supply position is expected to be even more serious in 1960 unless means can be found to boost world production considerably.—Foreign Commerce Weekly.

The World of Unilever

 \mathbf{A}^{N} abstract of the article appearing in the December issue of Fortune follows:

Lever Brothers and Unilever is the largest corporation outside of the United States, and one of the six largest in the world. Because of its widespread holdings and interests, Lever Brothers and Unilever has bucked, on a worldwide scale, wartime economic and political problems, and in many sectors has had to face radical opposition to private industry. It operates in almost every country but Russia, owns and runs 516 companies and has majority holdings in 55 active companies. Last year \$1.35 billion* was realized in sales, with a \$48 million net profit, including profit from subsidiaries.

This business, built on fats and oils, manufactures more soap and margarine than any other company, processing more than 2 million of the 5,800,000 tons of fats and oil handled in world commerce. Its soap supplies 12 per cent of world consumption (750,000 tons), and its margarine supplies 40 per cent of world consumption, Russia excluded (560,000 tons).

Although Lever Brothers and Unilever is most widely known for its dealing in margarine and soap, fats and oils comprise only 60 per cent of the company's entire business. It does a \$25 million business in canned goods, \$7,500,000 in ice cream, \$35 million in fish and game stores. Toothpaste, perfumes and cosmetics account for an additional \$35 million. In Germany, it operated the manufacturing of paper and textiles, and in Britain it maintains a large paper board factory.

This gigantic organization finds it roots in two great businesses, one operated in England largely soap making, and the other in The Netherlands dealing almost exclusively in margarine. The history of these two companies, and their eventual amalgamation, furnishes a remarkable instance of the first endeavors in modern business practices.

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The British firm was originated and vastly expanded by one man, William Hesketh Lever (Viscount Leverhulme of the Western Isles). In 1884, he entered the modest soap business of his brother (James Darcy Lever) and in so doing started a company which was among the first to employ modern practices in merchandising. Their soap was cut into tablets, individually and gaudily wrapped, and "Sunlight" quickly became a familiar word for soap with the aid of heavy advertising.

In 1888, he built a huge factory in Liverpool, and there established a model worker's village, Port Sunlight, with stone and brick houses, a recreation hall, library, church and art gallery, containing his own great art collection.

This still remains the world's largest soap factory and is served by the world's biggest privately owned dock. It was not long before Lever Brothers was shipping soap all over the world, and manufacturing it in Switzerland, Australia, Canada, Belgium, France, Netherlands, Germany and the United States. Quite naturally, they entered the raw materials market, and picked up 200,000 acres of oil palms in the British Solomons, and 1,875,000 acres of palms in the Congo, where houses, schools and hospitals were set up for the natives.

William Lever attempted amalgamation with the other soap companies in 1906, but at the time met with a furious, anti-monopolistic barrage from the press, and for the while was not successful in his efforts. However, by 1920, he held some 75 per cent of the British soap business. During World War I, he added the manufacture of margarine to his production at the request of the British government. (Margarine had hitherto been imported from The Netherlands.) At the same time, he founded the MacFisheries firm, a whaling company, and added six of the leading British soap companies to his organization. From 1917 to 1925 his capitalization increased from £15,000,000 to £57,000,000. His only lapse of good judgment seems to have been in the buying of raw materials at too high a price, a notable example being the buying of the Niger Company, purchased at £8,500,000 shortly before 1921, when prices dropped to one-third the wartime level.

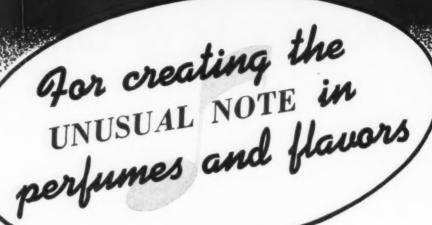
Upon William Lever's death, May 7, 1925, his place was filled by Francis D'Arcy Cooper, a member of the board upon whom Lever had placed responsibility in his later years. Cooper spent several years strengthening the inner organization of the company before turning his eyes toward the acquisition of new concerns. By 1928, however, he was more than interested in The Netherlands concern, Margarine Unie, N. V., and its sister company in Britain, Margarine Union, Ltd. But here it is necessary to briefly look back at the origin and development of this powerful and widespread Netherlands organization.

NETHERLANDS BRANCH

During the mid-1800's in The Netherlands, the two companies of Jurgens and Ven den Bergh competed with each other in a friendly rivalry in the exporting of "refreshed butter." This pleasant relationship, however, was not long to last, for in 1870 with the development of margarine, competition became stiff and anything but triendly. By 1907, what with increased competition and duplication of facilities, they resorted to profit pooling.

Two factors brought about the union of these long-time enemy companies in 1927: First, both had bought heavily into the great Schicht Brothers soap industry; and second, a price war lead by Jurgens forced Van den Burgh into

^{*} This includes intracompany sales of about \$270 million, mostly accounted for by products like processed oils and fats.





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a position to accept the merger. From this union were formed two joint holding companies, Margarine Unio on the continent, and Margarine Union in Britain. This affiliation dominated the margarine market on the continent and Britain, and did a booming business in warimpoverished Germany. However, like Lever, they had bought overhigh on the raw materials market, and Anton Jurgens sought to stabilize his industry by collaboration with Lever Brothers, as the two largest consumers of fats and oils in the world.

In 1929, after a year of drafting agreements Lever and Unie finally completed their merger, thus fulfilling the ambitions of both Cooper'and Anton Jurgens. The result of this union was Unilever, N. V. (embodying Unie, and since the war, all other companies outside of the British Empire, including the American branch); and Unlever, Ltd. (including the old Margarine Union, Ltd., and ordinary shares of Lever Brothers). This combination is set up with two identical boards, each controlling the other. Geoffrey Heyworth is chairman of the board of Lever Brothers and Unilever, Ltd., while Paul Rykens is chairman of the board of Unilever, N. V., each being the vice-chairman of the other's company. Both the British and Netherlands branches own all subsidiaries and subsubsidiaries.

Both the British and Netherland interests benefit through the raw material markets, executive talents, research, facilities and price stabilization. The Dutch side gained considerably by the acquisition of the Lever techniques of merchandising and advertising.

Despite the war, both Ltd., and N. V., did well. The British obtained Birdseye Frozen Foods rights in England, as well as a pea processing and canning industry, and Smethurst, Ltd., fish curers. In the U. S., it acquired Pepsodent and Lipton Tea, which added dehydrated soup to its operation. However, this merger did not amass the great fortune that might have been anticipated, largely because of American competition as well as smaller competition in Europe.

Denmark Potash Imports

In the second quarter of 1947, Denmark imported from the U.S.S.R. 18,200 metric tons of potash, valued at approximately \$740,000.

Philippines Soap Imports

Arrivals of all types of soaps in the Philippine Republic from the United States during the first 8 months of 1947 totaled 4,178,292 pounds, valued at \$1,131,704. These shipments were only 14 per cent less than the volume for the entire year 1946, whereas the value of such receipts throughout the January-August 1947 period exceeded that for 1946 by about 39 per cent.

Total arrivals of all soaps in the Philippine Republic from the United States in the 8 month period ending August 1947 were 4 per cent larger than the quantity and 143 per cent larger than the value of shipments of these products in the year 1938.

Brazilian Soap Trade

Exports of industrial soaps and similar products from Brazil during the January-July period of 1947 amounted to 926 metric tons, with a value of 3,441,000 cruzeiros, in comparison with 4,325 metric tons, valued at 15,691,000 cruzeiros, in the like month of the preceding year.

German Alkali Production

Production of soda ash in the United States Zone of Germany increased from 3,983 metric tons in the first quarter of 1947 to 16,125 in the second quarter. Output in July was 6,271 tons.

Caustic soda output rose from 2,350 tons in the first quarter to 11,521 in the second quarter. Production in July was 3,363 tons.

New Zealand Soap Production

The latest statistics available from New Zealand show that the value of soap and candles produced in that Dominion during the fiscal year 1945-46 was £1,157,983. All manufacturers have been working below capacity, chiefly because of the shortage of alkalies, but the output continues to be sufficient to meet domestic demand. In 1945-46 there were 24 units engaged in the production of soap and candles.

Australia Short of Alkali

Australia's efforts to negotiate imports of soda ash and caustic soda (both are extremely short in the Commonwealth) from the United Kingdom have been unsuccessful because of the British coal shortage. Australian requirements of soda ash in 1947 were estimated at 80,000 tons, and only 35,000 tons are available from domestic production.

In the first half of 1947, the United Kingdom exported to Australia 690 tons of soda ash and bicarbonate of soda and 70 tons of caustic soda.

Export Allocations, First Quarter

The U. S. Department of Agriculture has announced smaller first quarter 1948 export allocations of fats and oils than for the same period in 1947, but officials stated that actual shipments during the period will include quantities carried over from the fourth quarter of 1947.

Allocations announced for the January-March 1948 period total 87.0 million pounds. This consists of 63.8 million pounds of fats and oils for commercial shipment and 23.2 million pounds of shelled peanuts on an oil content basis to be supplied by the Commodity Credit Corporation. For the first quarter of 1947 the export allocations (excluding exchanges and unshipped balances which were reallocated) totaled 145.8 million pounds.

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THE special Federal excise taxes, which include excises on cosmetics, toiletries, and perfumes, may be removed from future tax structures, if the recommendations of Senator Aiken, Republican, of Vermont, are accepted by the Congress. Senator Aiken heads the Senate Expenditures Committee. It is an advisory body. It makes recommendations to the Senate Finance Committee. While its commendations have no mandatory powers, it has strong influence with the Senate Finance Committee, and there is considerable confidence on the Hill that the chances are good for a substantial part of these recommendations to be placed in the tax bill which has been under process of formulation for submission early in 1948.

TAX BILL PROPOSED

If the Aiken Committee ideas are incorporated without much change, taxes also will be removed from local and long-distance telephone service, telegraph and cable messages, sale of electric energy, gasoline, amusements, and practically all passenger transportation, and other so-called special taxes. Otherwise the reports about the potential tax bill are so confusing that any discussion is largely wishful thinking. Congress will have a much clearer idea of its purposes in relation to taxation, and other matters pending for legislation, when it comes back from the Holidays. It depends upon the Holiday visit with the homefolks to get a defined impression about the thoughts and wishes of the voters. These Holiday experiences will be reflected in the bills that are presented after New Year.

It is generally understood that Congress as a whole has no desire to tamper with the Taft-Hartley Law. There are no clear proposals from important quarters in the Congress for an amendment. There is no exception to this situation. If the threat of a strike at the atomic energy plant at Oak Ridge, Tenn., should become serious, many Members of Congress feel the "national welfare" clause should be strengthened, if the amendment is necessary. Some half dozen Congressional Committees are investigating the Oak Ridge situation. The prime object is to assure continuity of production at Oak Ridge, to further the national defense.

Any new addition to the Taft-Hartley Act would include an iron-clad guarantee of no work stoppages. The principle would be established that might have a wide bearing on other industries, and would protect other "essential" industries in a similar manner against work interruption. A House Labor Committee has started an active investigation. Full-dress hearings are scheduled in January. The main purpose is to discover what new legislation is necessary to assure protection against work stoppages.

Another subject of widest interest among business people is the decision which will be announced within the first 60 or 90 days of 1948 by the Interstate Commerce Commission on the application of the railroads for a third increase in freight rates. If it is granted, which is expected, this raise will be the fourth within twelve months. It is estimated the present proposed increase will add another half billion dollars annually to the freight expenses of the business people of the nation. The total of freight charges added during the year would be well in excess of a billion dollars. And what is still more striking is the frank announcement by the railroads that they will file still another application for another freight increase when the present hoist is authorized. Each of the past and current increases are attributed to the increased wage scales the railroads have been ordered to establish by the Government. The further increase the railroads forecast at this time will be made necessary by the demand for higher wages which has been intimated by the railroad brotherhoods.

Moreover, both Phil Murray, the head of the CIO, and Walter Reuther, head of CIO Auto Workers Union, have given notice that the members of their Unions do not earn enough to properly support their families, and that they will demand still higher wage scales. The hearings on the application for the present raise in freight rates were the most extensive, and most exhaustive, in the history of the ICC. Hearings were held in Chicago; Montgomery, Ala.; Salt Lake City; Los Angeles; Boston; Ft. Worth; Portland, Oreg.; and Washington, D. C. The taking of testimony took almost 400 hours, or something like 47 work days, equal to a month and a half of daily listening to opinions and ideas. The cosmetic, toiletries, and perfumery industries were represented at some of the hearings, as were allied industries such as those who deal in flavors, and in soaps. The citrus fruit and citrus products industries were heavily represented.

FREIGHT RATES RAISE ASKED

The railroads asked they be permitted to raise freight rates in the South and the West to an over-all of 31 per cent. In the Northeast, or Official Territory, the increase



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would be an over-all of 41 per cent. The railroads claim that their net operating costs are now in excess of \$1,250,000,000 per year. Aside from the blanket increases requested, the railroads also wish to increase rates on specific commodities. There would be a substantial increase on the freight rates for wooden boxes and paper boxes. Freight on sugar would be increased 20 cents per 100 pounds.

The fruit juice, naranjilla de quito, which became very popular in an experimental way, at the Ecuadoran pavilion of the New York World's Fair in 1939, is the subject of much interest on the part of the U.S. Department of Agriculture. It is also used as a flavor, not like and yet not unlike citrus flavor, and is obviously of interest to readers of THE AMERICAN PERFUMER. Lewis P. McCann, geneticist in the Division of Fruit and Vegetable Crops and Diseases, of the Department of Agriculture, at Beltsville, Md., has done much work in trying to bring the naranjilla to the United States. He thinks it has great commercial possibilities. It is described as similar to the orange in shape, color, and acidity. It produces abundantly every month of the year for a period of three years in Ecuador. The pulp is green, and the cross section appearance is similar to a tomato. Efforts to grow it in the United States have been launched in California, Florida, and other Southern States, as well as in Northern States. In South America, a limited production also occurs in Colombia and in Guatemala.

The fruit is prolific. The annual yield per acre has a value of \$4,858, the returns from the juice. It is interesting to note that $2\frac{1}{2}$ acres produce 12,500 gallons. The cost of production is exceedingly low, approximately \$122 per acre.

The Department of Agriculture made the interesting announcement that acreage of citrus trees of bearing age in the United States had risen from 282,100 acres in 1919, to 848,000 acres in 1947.

ARGENTINE EXPORTS

The Argentinian Government has announced that it "accords preferred export rate of 398.00 pesos to \$100 U. S. money or equivalent in other currencies" to export the oils of lemon, orange, mandarin, lemongrass, and eucalyptus. From New Delhi, in the Government of India, the U.S. Embassy reports that in connection with process manufacturers of essential chemicals, under foreign patents, the Indian Government is moving for revision of the Indian Patent system so that foreign patentees will have to give compulsory use of their patents in connection with products marketed in India. From Netherlands Indies comes the word that the transport of goods from uncontrolled to controlled areas, and from controlled to uncontrolled areas, is permitted only under license issued with or without conditions by the Director of Economic Affairs of the Netherlands Indies. This Order is of interest to the readers of THE AMERICAN PERFUMER because the restrictions apply to shipments of citronella oil, pepper, coconut oil, and similar products, of the Indies.

From the American Embassy at Bogota, Colombia, comes this excerpt from the report of the Colombian Minister of National Economy to the Colombian Congress: "A committee of experts is preparing a project of law completely overhauling Colombian trade-mark and patent law. Article 4 authorizes the Colombian Government to require, at its discretion, that foreign firms manufacture their prod-

ucts in Colombia in order to obtain patent and trademark protection. The adoption of such rules in our country is justified, for if the products of foreign industry have a preponderant market in the nation, it is only right that they tie their capital and activities to the country by means of establishments which contribute to our incipient industry." It is noted there is much similar thinking and planning in other Latin-American countries.

Glycerogen, a substitute for glycerol, is described in a report recently issued by the Office of Technical Services of the U. S. Department of Commerce. The report is of interest because it covers a material used for softening and conditioning in cosmetics. Glycerogen was originally produced by hydrogenolysis of invert sugar; the formula came out of the laboratories of the I. G. Farbenindustrie in Germany.

Department of Justice in December filed suit in the U. S. District Court for the District of Columbia against the E. I. duPont de Nemours, Inc., charging unlawful monopoly of the Cellophane industry in the United States. Six other companies, located in England, France, Canada, and Germany, were named as "co-conspirators." The Government's complaint charged that the unlawful employment of patent rights, interchange of technical information, and fixing of arbitrary and non-competitive prices, gave the duPont corporation control over the domestic market for Cellophane products, and excluded all others from the United States. The complaint states: "For many years duPont's Cellophane plants have produced in excess of two-thirds of all this commodity used in this country. This stifles free enterprise and should be eliminated."

CEYLON EXPORTS

Ceylon reports considerable increase in cinnamon-leaf oil exports in 1947, all the product going to British Empire countries. Exports of cinnamon-bark oil declined, the United States taking 4/5 of all the shipments. Substantial quantities of citronella oil were shipped from Ceylon, a large part of it to the United States. The rest chiefly went to British Empire countries. Paraguay sent us a large volume of petitgrain oil, as well as guaia-cum-wood oil. Palestine, one of the most ancient and historic producers of essential oils, exported a large volume during 1947, while New Zealand imported substantial quantities of mixed oils from the United States.

Brazil exported large quantities of citrus essences during 1947, only a small proportion of which came to the United States. It also sent out much rosewood essence, most of which came to the United States. Most of the material labeled "perfume essence" was sent to the United States.

Most of the geranium oil shipped out of the island of Reunion in 1947 was sent to metropolitan France. A small quantity was sent to the United States, and a still smaller quantity to England. The division of Reunion's vetiver product was substantially the same as its geranium oil. All of its ylang-ylang was sent to France.

It is interesting to learn that during one month in 1947 Japan's 18 dentifrice manufacturers produced 625,415 kilograms of tooth powder valued at 12,508,300 yen; and 90,070 kilograms of semipaste, valued at 9,727,500 yen. Authorized increases in cosmetic prices were reported as responsible for a 11 per cent rise in production of cosmetics and toiletries in one month, the increase jumping to 414,358 kilograms, valued at 70,746,969 yen.



A compendium of significant news and views

Harold Hutchins says . . .

STORY OF THREE RINGS

Long ago, as man measures time, a literary friend told me, there was a kingdom in the Far East that was ruled by a king, whose father had been king before him, and his father had been king before him, and so on and so on. Now the business of being king was given by father to son all these years through a simple device. The old king gave his son a ring. The ring carried the job of being king, and with it, believe it or not, the love of all the people in the kingdom. Now it came to pass, related my friend, that the king we are talking about in the first sentence had three sons, and he loved each son exactly the same as he did the other two. He viewed these sons of his as a king, as a father, and as a subject. He just could not make up his mind which of these three sons he loved the best, which should receive the ring, and which should enjoy the love of all the people. Like other folks, he kept delaying and delaying. But, although he lived a long time, he knew he could not live forever. So, he sent for the most clever artificer in the kingdom. Bring me, said the king, as he entrusted the ring of kingdom to this fellow, bring me, said he, three rings like this one. It will be impossible to tell one from the other. I can do it, said the artificer, so the king now had three rings. And in great secrecy, one by one, he called each of his beloved sons to his deathbed and bestowed the gift of a ring. Each said naught until the day after the funeral. Then each came forth with his ring. Each claimed to be king and have the love of the people. Each said the other two brothers were cheats and liars. Each swore

how the father had called him to his bedside and given him the ring and the blessing. Now, continued the friend telling me this story, there was great excitement. The local courts could not do a thing. The supreme court called the best mechanics, in and out of the kingdom, to examine the rings. Each was like its mates. There had never been anything before like it. Then word came trickling through, to the parties concerned, of a very smart judge. He had retired, in truth, but could be depended upon to listen to a case as celebrated as this one. He lived in the next kingdom. So, off to this judge went the three sons, with the three rings and their lawyers and servants. It made three good-sized caravans. Luckily, they carried their own tents and food, otherwise they would have no place to sleep and nothing to eat in the small village of the retired judge. And now, came the morning when the judge was to hear the case. Each son stepped forward. Each son produced the ring. Each son told the facts. Each son accused his brothers of being falsifiers. Each son swore he had faith in his father. Each son knew the father would not do this thing to him. The judge listened. No witnesses? No! The gift of the ring had been made in secret. Only the dving father and the individual son had been present. The three rings were so alike as to defy examination for any differences. Yes, the judge rested and did some thinking. He called the three sons before the bench. Tell me again, he said, tell me again the virtues of this ring. And so they told him. The possessor of the ring became king and had the love of all the people. The judge did some more thinking and came to his

decision. This court cannot decide which is the true ring. The court cannot say if one of the three rings is the true ring or if all are counterfeits. Each of the claimants must return to his kingdom. Each must act as if his were the true ring. Then, as the virtues of the true ring become manifest, then as all the people come to love the possessor of the ring, he will be acclaimed king. It may be one of you three sons. It may be someone else who has the true ring. Only the virtue of the ring will bring the proper decision. Now, go forth and love each other. And, at this season, concluded my friend, the story of the three rings is worth repeating. So, I am repeating it to readers of THE AMERICAN PERFUMER, in a most unworthy version. This tale is best given in Nathan the Wise. It was a good story for many centuries. It is a good story today! So, each son, go forth and love each other. The Judge has told us that. And it makes little difference how you address the Judge. He understands all languages. He knows all hearts. Peace on earth—love ye one another. Happier New Year to men of good will!

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EAVESDROPPING

We don't do it often enough—eavesdrop on a lecturer in the history of medicine, stressing the basic sciences. But this time, the fellow was asking the students to name the ten most vital men, until the 18th Century dawned. He gave lots of time, you will notice, as the world was very old by 1799. Just for a gag, how about you selecting your ten most vital men, until the 18th Century, and send a few words on why you selected them, if you will? It may be interesting!

From the time she's fourteen until she reaches sixty, the average American woman uses three times her weight in cosmetics. Or, to figure it another way, she applies eight pounds of make-up and creams a year. It could be that's why she looks like such an angel face, as one of the newer make-ups is called, sagely observes one of our friends in the Great Southwest.

FAIR TRADE PROGRESS

In 1931, only one state, California, received the benefit of Fair Trade Laws. By the end of 1937, 38 states, or 5/6 of the population, were protected by Fair Trade Laws. Today, 11,221,810 consumers in three states and the District of Columbia are still deprived of Fair Trade Laws.

TIN CAN HISTORY

The first tin-coated "vessel" was used 2,000 years ago. Napoleon paid a 12,000 franc prize to Nicholas Appert, who was a wine-maker and pickler, for being the first to preserve food by heating and sealing. In 1825, a patent was awarded to Thos. Kensett and Ezra Daggett for "vessels of Hand-soldered tin cans were put in use by 1829. By 1891, preserved foods were within the reach of all, due to the discovery of circle shears, drop-presses, lock seamers. and automatic can-making machines. Today, the tin can industry is protected by patents and provides jobs for 60,000 in 250 plants producing tin-plate containers ranging from sixtablet aspirin tins to five-gallon tomato pulp cans.

DCAT DINNER

Fred J. Stock, Chairman of the Drug & Chemical Section of the New York Board of Trade, has announced the following Committees to cover its Annual Dinner, to be held at the Waldorf-Astoria, March 11, 1948: Dinner Arrangements Committee, Lloyd I. Volckening of The Ivers-Lee Co.; Program Committee, Harold Altshul of Ketchum & Co.; Reception Committee, Robert B. Magnus of Magnus. Mabee & Reynard, Inc.; and Publicity Committee, Harold C. Green of L. Sonneborn Sons, Inc.

LEARN WHILE YOU FNJOY

This department doesn't go in much for book reviewing. But, when we hear about a book as good as "With Cradle and Clock," by Knud Stowman, and published a few years back by Harper and Brothers, we pass on the news. Here is a tale of the New York that was-about 1700 -when yellow fever flourished, and a poor Englishman, trained in France, sought to secure the task of delivering — of all things — babies! The reason we mention the book is because the author has brought us a day-by-day view of the hairdressing and the wig parade, along with the beauty aids among the high and the low. So, you learn while you also enjoy.

ESTHETIC READERS

We never suspected that others in the cosmetic industry were fans of da Vinci, but a recent mention we made of this super-super brought us a flood of information. In all probability, not one bit of it will help anyone make a better perfume or create an outstanding piece of cosmetic advertising copy, but it is nice to know that a fellow has a host of co-admirers. Leonardo da Vinci (1452-1519) has had more books written about him than you can shake a test tube at, and please don't throw grammar books at us. The question really is, 'What is there he didn't know about, at least a century or more ahead of his time"?

GOVERNMENT READING MATERIAL

We suppose all of you have seen the very recent pamphlet issued by the U. S. Department of Commerce, entitled "Beauty and Barber Shops (Basic Information Sources). It is very good and up-to-date. It lists Government publications—those for free and those for pay, as well as non-government publications. range of the latter is wide, including the story of Antoine: the fascinating de Zembler; a Once-Over-Lightly Story of 1939; and Florence Wall's "Principles and Practice of Beauty The most interesting de-Culture." scription to us was of a book entitled "Establishing and Operating a Beauty Shop." For all of 30¢, you secure a 135 page book, of 1946 vintage, which discusses everything about a beauty shop. That's the one we buy!

WHY HIGH PRICES?

Since industrial wages have doubled since 1939, and their rise has not been accompanied by a corresponding increase in output per worker, they represent one of the primary economic pressures which has led to present high price levels, according to comprehensive investigation of prices being made by the National Association of Manufacturers.

PROFITS AND PRICES

The profit margin on the sales dollar is the most direct method of measuring profit as part of price. In the light of the sales and profits data published by the Department of Commerce, the effect upon manufacturers' profit margins upon prices cannot be very great. In the manufacture of food products, for example, profit margins have averaged two or three cents per dollar of sales, yet food is the most pressing problem in the price situation. Plain dollar figures, or aggregate profits, are without significance, unless they are related to other basic aggregates, because the entire economy has grown enormously since 1939. It is a mere indulgence in spectacular figures to say that corporate profits have been running lately close to \$17 billion, or so-and-so many times pre-war levels. It is hard to realize that our national income is now approaching three times the 1939 total of less than \$73 hillion.

HOW IT HAPPENED

The slight let-up in business activity which had been freely predicted for the last quarter of 1947 did not occur for four reasons, Henry H. Heimann, executive manager of the National Association of Credit Men, says in an end-of-the-year review of business released recently. He points out that there had been an underestimation of the pent-up demand caused by war shortages and, also, the warnings issued during the year made for a more cautious attitude. which helped prevent some of the excesses which might have caused business reaction. Labor management difficulties at the start of the year also somewhat curtailed general production. As a fourth point, he refers to the tremendous European requirements and our decision to fulfill them in such large quantities.

NEW INSECTICIDE

A new chemical compound, Thiophos 3422 insecticide, is effective against a wider range of insects, mites and other lower invertebrates than any other chemical in practical use. This includes nicotine, rotenone, DDT and other compounds. In fact, no species of insect or mite among those tested has been found resistant to its toxic action in the laboratory, at concentrations comparable to those now used for control of known insecticides. The product was developed by the American Cyanamid Co., and is scheduled to be available early in 1948.

Over fifty years have passed since the first synthetic jasmine, created by Schimmel, appeared on the market. Continuing our leadership in this field today we offer several synthetic jasmine specialties.

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A.M.A. IS COSMETIC-MINDED

The Committee on Cosmetics of the American Medical Association is accumulating a complete file of information on cosmetics in current use. An ever-increasing number of inquiries, received by the A.M.A. from the medical profession, relative to the composition and possible toxic properties of cosmetics, is reported to have instigated this survey.

CHEMICALS NEEDED ARROAD

The President's Committee on Foreign Aid has reported that the United States may be asked to supply about \$260,000,000 worth of chemicals to foreign countries from our estimated annual output of around \$9,000,000,-000. The report further stated that, "While United States exports of chemicals in 1947 are, in most cases, only a small fraction of total production, aggregate shipments are two to three times the prewar volume."
"Some expansion of exports might be obtained through some voluntary domestic rationing by producers with a view to reducing consumption for relatively unimportant purposes." "A tightening of the export licensing system might also be helpful in reducing the aggregate demand."

THE NEW LOOK

The Rexall Drug Co.'s repackaging program—probably the largest of its kind ever attempted in the drug industry—is progressing rapidly. New package designs for more than a thousand of the company's products have been completed since the program was begun in 1943. Justin W. Dart, president of Rexall, announced four years ago that the company would challenge the appearance of each of its nearly 5,000 items with the objective of making them outstanding in sales appeal and functional efficiency.

HIT BY FOOD SHORTAGE

The serious dislocation between food supply and food demand throughout the world, both as a result of greatly expanding domestic consumption and foreign crop deficiencies, will continue to place a strain on all the production facilities of International Minerals & Chemicals Corp. during 1948. The corporation is the largest producer of phosphate rock and is one of the principal manufacturers of plant foods and refiners of potash salts. It is also a

manufacturer of such other important products as potassium chlorate, silica gel, sodium silico fluoride, defluorinated phosphate and many allied amino-type products. Agriculture's demand for increasing amounts of plant food, both through increased prominence given to soil conservation measures, and the necessity for highest possible level of crop production to meet the growing domestic as well as emergency foreign food requirements, is expected to cause the demand for fertilizers and their components to attain new heights in 1948.

BASIC CHEMICALS SHORT

Basic chemicals and related products listed in the Krug Report, will probably remain in short supply during 1948, according to recent estimates by the Department of Commerce. Among the more important ones are chlorine, phenol, soda ash, dyes, caustic soda, insecticides, medicinals, sodium sulphate and creosote oil.

BEAUTY EXPERTS TELL ALL

Beauty secrets of the motion picture stars are no longer "trade" secrets. Two famous Hollywood make-up artists, Ern and Bud Westmore, explain all in their recently published book, "Beauty, Glamour and Personality." The Westmores, however, state that their book was not written for the benefit of movie queens or professional glamour girls, but rather for the benefit of the average feminine reader.

UPHOLDS DEPILATORY PATENT

The United States Court of Appeals for the Fourth Circuit recently unanimously sustained the decision of a lower federal Court which held valid a patent covering depilatories containing substitutes mercaptans, including thioglycolic acid. The patent is owned by Sales Affiliates, Inc., and officials of that company state that the federal appellate court's decision "is important not only with respect to odorless depilatories, but in its recognition of invention with respect to other compositions made with mercaptans at specific concentrations and pH ranges." Officials of Sales Affiliates also stated that "Because of the wide application, particularly of thioglycolic acid in permanent waving, the decision may pave the way for a similar patent situation in the field of permanent waving, commonly known as 'cold waving,' which at the present time is reported to be a \$400,000,000 business in the United States."

"FROM THE NECK UP"

A striking new exhibit hall which portrays the universal desire of men and women around the world to change their natural features and adorn themselves "from the neck up" was opened to the public last month at the American Museum of Natural History, in New York. In addition to drawing from the Museum's extensive anthropology collections the Mu-seum has enlisted leading figures and manufacturers in the hat, accessory and cosmetic trades to demonstrate authentic relationships between today's latest fashions and the fashions of other cultures. Although the hall is not designed basically as a fashion show, a number of latest hat and jewelry fashions will be incorporated. The exhibit also will show how ceremonial tattooing, scarification and primitive face painting contrasts with modern make-up for street use and our present social events. Also displayed will be the latest style coiffures, together with native hair-dos, produced in such remote spots as the African Bush and the Arctic Circle.

STUDENTS HELP NEEDY

Students at the Philadelphia College of Pharmacy and Science have pledged to contribute 10¢ per month each, to send CARE packages to Europe. The first shipment of 14 was made at Thanksgiving and was destined for the Pharmaceutical Society of Great Britain, for distribution to needy pharmaceutical students of the country. Subsequent shipments will go to other European countries and similar groups. Mrs. Elsa Ehrenstein, instructor in operative pharmacy at the college, originated the idea and is supervising its operation.

FIT FOR A PRINCESS

Cinderella's magic pumpkin turned into a flying coach when Pan American Clipper to London transported a novel wedding gift to Princess Elizabeth from Charles Revson, president of Revlon Products Corporation. It was a lipstick in Revlon's newest color, "Cinderella's Pumpkin," encased in solid gold and fit for a princess.

OTS REPORTS AVAILABLE

The Australian Government, through its Embassy in Washington, D. C., has contributed 39 technological reports to the office of Technical Services, Department of Commerce, for dissemination to American business, science and industry, according to a recent statement by John C. Green, OTS Director.



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RAW MATERIAL AND ENABLE YOU TO DEVELOP MODERN PERFUMES OF BEST
OUALITY AND HIGHEST SALES APPEAL.

A MODEL ACT

A model state act covering the labeling of hazardous chemicals is being prepared by the Manufacturing Chemists' Association of the United States. It is reported to be in the final stages of completion and final draft will probably be available for public release early in 1948.

FOOD FOR THOUGHT

There is a need for understanding that America's matchless production is made possible only through the profit system. Were it not for profits, where would be the highways and streets, and schools and playgrounds, and colleges and hospitals, and pools and parks, which we in this country enjoy on a scale nowhere approached anywhere else on earth? How many people understand that profits are the motivation and that they are the means by which plants are built, by which equipment is made and bought, and by which ideas are developed into products that can be made and sold and used, and by which are provided the millions upon millions of jobs which enable a standard of living which makes the rest of the world's mouth water? Taxation burdens threaten the nation's economic security by discouraging investments in business ventures which provide jobs and incomes. A large portion of the risk-capital for investment must be supplied by individuals. It stands to reason that what they haven't got. they can't supply. And by as much as our Government prevents people from keeping a reasonable portion of what they earn, and by as much as it discourages them from risking their capital in business ventures-by that much our Government cuts down the prospects of more jobs and more incomes. By that much it hacks away against protection against future unemployment and distress. By that much it lowers the ceiling on American opportunity. As for profits being "excessive," the nation should realize that no major manufacturing industry has had a final average profit margin as high as 10 per cent on sales in any of the past six years.

NEW OWNERS

Seventeen, Inc., former subsidiary company of Jeurelle, Inc., announced last month the purchase from the Emerson Drug Co. of the assets of Jeurelle, Inc., including Seventeen. Inc. In the future, manufacturing and distributing of the Seventeen line of cosmetics will be done under the name of Seventeen, Inc. The company will operate from its offices in RKO Building, Rockefeller Center, New York 20, N. Y. Orders, remit-tances, inquiries and all correspond dence should be directed to the RKO Building.

INCREASES DEALERS' PROFITS

E. H. Little, president of Colgate-Palmolive-Peet Co., last month announced that the prices on Colgate Toiletries have been adjusted so that dealers selling at Fair Trade minimum will receive at least a 33 1/3 per cent profit. It was pointed out that many Colgate items already show a profit margin well in excess of 33 1/3 per cent when sold at Fair Trade minimum. Mr. Little stated this means druggists not only will make a greater profit on individual toilet article items but, because of the large volume of Colgate sales, their overall profit is substantially in-creased. This will be particularly welcome at a time when dealers' operating costs are the highest on record.

SYNTHETIC TALC

Drs. N. L. Bowden and O. F. Tuttle, scientists at the geophysical laboratory of the Carnegie Institution of Washington, have borrowed nature's recipe book to make several minerals in the laboratory, under the pressures and temperatures at which these minerals were produced in the earth. Talc, which is the base of face powder and has countless other uses in the manufacture of cosmetics, was produced from its ingredients-magnesia, silica, and water-under high water pressure.

GET RONUS

Employees of the J. B. Williams Co., exclusive of officers, all received a bonus on December 19. Those with the company for 10 years received two weeks' pay; those employed over two years, but less than ten, received one week's pay; while those with the company over three months, but less than two years, received one-half week's pay.

PRODUCTION CONFERENCE

The American Management Association conducted a production conference at the Hotel Pennsylvania on December 15 and 16. The conference was designed to serve as a clearing house to provide reports on experience and an opportunity for an exchange of ideas and knowledge in an area of management that is of crucial and eminent importance today.

POINTS OUT DANGER

Because "a majority of Americans suffer from nutritional deficiencies, enactment of laws to maintain standards of nutrition comparable to the pure food laws was suggested last month by Basil O'Connor, National Chairman of the American Red Cross, at the Second Annual Dinner of the National Vitamin Foundation. In a warning to nutrition specialists gathered at the Waldorf-Astoria for the dinner, Mr. O'Connor quoted survev estimates that "15 per cent of our people have frank symptoms of nutritional diseases, and, what is even more shocking, nearly 70 per cent of the people are suffering from subclinical disorders, indicative of marginal deficiencies. Calling for what he termed "insured nutrition," Mr. O'Connor stated that "establishing basic nutrition for the mass of people is so vital that it may be wise to have insured nutrition, rather than trust all of our efforts to education.'

NEW LENTHERIC SALON

The new Lentheric salon was opened last month at Fifth Avenue and 53rd Street, occupying four floors filled with perfumes, gadgets and clothing, plus new hair-do salons. This is the third Lentheric salon in existence-the first having been established in Paris in 1885.

VARIETY STORES TO MEET

The National Association of Variety Stores, trade service society of independent retailers, will hold its annual convention and fifth merchandise fair at the Hotel Sheraton, Chicago, next February 3-6, according to a recent announcement by Secretary-Treasurer Marvin E. Smith.

SEEKS CLUE TO BALDNESS

Dr. Mildred Trotter, professor of gross anatomy at the Washington University School of Medicine, is tackling some problems about the human hair in a new way. She wants to learn exactly what changes take place in a person's hair from birth to maturity. Her subjects are 16 boys and girls, ranging in age from a few hours to 17. She has taken samples of their hair every month and is examining them under the microscope. She doesn't expect to find the answer as to why people grow bald, but does hope to uncover some fundamental facts that may have a bearing on the subject. The study also may lead to establishing a difference between a boy's hair and girl's hair, and setting up a method of telling the age of a person by examining the hair.



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The impressive sales records established by us in the previous year indicates the high goal which discerning cold wave manufacturers have set for their finished solutions.

Our recognized high standard "thio" is in such increasing demand in the cosmetic industry that our facilities have been greatly expanded so that all may be served in the coming year.

We invite your inquiries.

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ANOTHER NEW INSECTICIDE

A new insecticide, three times as powerful as its German predecessor, but no more expensive, is now being produced in commercial quantities by Monsanto Chemical Co. To be known as Nifos-T, the chemical contains 40 per cent tetraethyl pyrophosphate. It is unusually effective against aphids, mites and certain crop pests difficult or impossible to control otherwise.

MERCK WINS AWARD

Its success in pioneering large-scale production of streptomycin and other fine chemicals has won for Merck & Co. the important 1947 Award for Chemical Engineering Achievement. The Award is the profession's top recognition for group effort in chemical engineering. President George W. Merck received the award on behalf of his company at a dinner held last month at the Waldorf-Astoria in New York.

PROPRIETARY ASSN. MEETS

Kenneth A. Bonham, president of the Proprietary Association of America, told the scientists and research executives recently gathered for the Association's annual mid-year Scientific Section meeting at the Biltmore Hotel, in New York, that the foundation of any industry consisted of a recognition of the need of the people for a service or commodity, mixed in equal parts with the knowledge of how to produce the best product or service that would most adequately fulfill that need. He also revealed preliminary results of a survey on research, now being conducted by the Association, indicating that the 160 active members of the group invest some \$14,000,000 annually on research and scientific control.

TWO SURVEYS

J. J. Berliner & Staff, 212 Fifth Ave., New York 10, N. Y., have announced completion of two interesting survey reports for free distribution to customers and prospective users of the business and industrial research and mailing list facilities of the organization. "A Market Analysis for Business and Industry." one in the series of brochures, summarizes the multiple problems and principles of present day market conditions. The second survey being offered gratis is a collection of 100 concise reports on the most significant technical develop-

ments in industry during recent weeks.

PURELY PERSONAL

THEODORE G. KLUMPP, M.D., president of Winthrop-Stearns Inc., has been appointed to the advisory committee of the New York State Joint Legislative Committee on problems of the aging, of which Senator Thomas C. Desmond is chairman.

MONSANTO CHEMICAL CO. has awarded leaves of absence to Charles H. Sommer, Jr. and Louis F. Loutrel, Jr. to attend the advanced management program at the Harvard University School of Business Administration.

VINCENT A. GAME, formerly assistant manager of the Cap Department of the Glass and Closure Division of Armstrong Cork Co., has been appointed manager of the Cap Department.

MARY CHESS, INC. announces the resignation of Saunders P. Jones as president, and Byron C. Wagner as executive vice-president. Mrs. Frances Hollis has been named executive vice-president; Miss Helen Blake is made vice-president in charge of sales, and William D. Crookes is the new assistant sales manager.

THEODORE T. TOOLE has been elected president of Universal Laboratories, makers of Mavis, Djer Kiss and other V. Vivaudou products, as well as the Delettrez line.

JON SOBOTKA, well-known cosmetic public relations man, has opened his own offices at 300 East 57th St., New York, N. Y.

VANCE N. WILSON has been appointed Safety Co-ordinator for the Pennsylvania Salt Co. of Philadelphia.

JEAN DESPRES, president of Rallet Corp., announces the appointment of C. Ray Sanders as managing director of Marie Earle and the Rallet Corp. Mr. Sanders had been connected with Hudnut Sales Corp. since his return from the service.

JACQUELINE COCHRAN announces that John C. Tims, formerly with Harriet Hubbard Ayer and Duncan Storm, is salesman for the Southeastern territory; George Dudley, also formerly with Ayer, is also a salesman in the Southeastern area, while Jeanette Helms Kraft is promoted from special representative to wholesale work in Texas and Oklahoma

MILDRED WEDEKIND, who was happily married in March, 1947, is expecting a "blessed event" and after a leave of absence will return as director of Rallet Corporation's advertising, promotions, fashion and packaging design.

MORRIS L. LEVINSON, president of Associated Products, Inc., announced the appointment of Norman A. Mack, Inc. of New York City as advertising and public relations counsel for Chen Yu, Cloud Silk and 5 Day Deodorant. An expanded advertising program will be utilized in 1948, reports Norman B. Norman, in charge of the account. Gertrude Brows, at one time with Jacqueline Cochran, recently joined the Mack organization.

MICHAEL J. CULLINANE has been appointed merchandising director of the R. L. Watkins Division of Sterling Drug, Inc.

FREDERIC J. TRUMP, most recently president of Royal Pharmacal Corp., has joined McCann-Erickson, Inc., to handle the Revlon Products Corporation's account. He has been active in the cosmetic, drug and toilet goods industry, in both the manufacturing and distribution phases, as well as in retail merchandising, for the past 15 years, in Los Angeles, Chicago and New York.

EDWARD S. ROGERS, Chairman of the Board of Sterling Drug Co. and the Brand Names Foundation, recently presented the Foundation's "Certificate of Public Service" to Lifebuoy Soap, a product of Lever Brothers Co., "For holding public confidence through unfailing integrity, reliable quality and fair pricing." David E. Ketner, assistant advertising manager of Lever Brothers, accepted the Award on behalf of his company.

GERALD F. PAULEY, general branch manager of Monsanto Chemical Co.'s Organic Chemicals Division sales office in Chicago, has been elected president of the Chicago Drug and Chemical Association.

AL OSTRANDER introduced his newly-developed type of projector at a luncheon gathering of several hundred luminaries of the cosmetic world last month in the Ritz-Carlton Hotel, New York. This projector features close ups of the merchandise that is paraded before an audience by models. Mona Manet, one of the most gifted writers in the cosmetic realm, wrote and staged the entire production.

THE ROUND TABLE -

N. C. Lanitis, Cyprus Essential Oil Producer, Visits United States

Nicholas C. Lanitis, managing director of Lanitis Bros Co. Lymasol, Cyprus, returned by airplane to his

home December 28 after a two weeks' visit to the United States.

Mr. Lanitis is a producer of essential oils in Cyprus which are sold all over the world. He is an alumnus of Cambridge University, England,



where he was elected exhibitioner of Trinity College in 1937 and was reelected in 1938. In 1939 he was granted a research scholarship at Trinity College. He is also an author and his first pamphlet, "Trade Unionism and the Provision for Social Service in Cyprus," was published in 1940. This was followed by "The Question of Money" in 1942 and a book, "Rural Indebtedness and Agricultural Cooperation on Cyprus," appeared in 1945.

Mr. Lanitis, who comes from the Near East and is familiar with conditions there, feels that the possibility of war is remote and that in the coming years a closer relation between the Near East and the United States will be developed. In fact, this appears to be inevitable, he feels, because the United States is taking a position of leadership in world affairs.

Frederick Shoninger **Cuts Visit Short**

Frederick E. Shoninger, president of Antoine Chiris Co., Inc., New York, N. Y., has cut short his business trip to Europe, due to the sudden death of Albert Henissart, vice-president in charge of sales of that company, and will return to New York

on Jan. 15. Mr. Shoninger is also managing director of Antoine Chiris. Ltd., in London.

AMA Investigates Cosmetics

The Council on Pharmacy and Chemistry of the American Medical Association has formed a permanent committee to gather information on cosmetics. The step was taken as a result of steadily increasing numbers of inquiries pertaining to cosmetics.

Andre Givaudan Returns to Switzerland

Andre Givaudan, a director of L. Givaudan & Cie., S. A., Geneva, Switzerland, and its affiliated organi-



zations, has returned to Switzerland after a brief business trip to the United States, his fourth to this country since the end of the war. Mr. Givaudan devoted his time here primarily to a

Andre Givaudan study of the de-velopment progress of Givaudan-Delawanna, Inc., New York, N. Y., which was approved by the directors of the company.

Dr. Karas Returns To Rubinstein

Dr. Stephen A. Karas, chief chemist of Helena Rubinstein, Inc., New York, N. Y., has returned to his position after an absence of two years.

During this time he has served as a scientific consultant to the Department of Commerce, visiting Germany to study the cosmetic, aromatic and pharmaceutical industries. Several reports were published on the subject under his direction.

John J. Montean loins Firmenich

John J. Montean, who has been associated with one of the leading essential oil and aromatic chemical com-



John J. Montean

panies for the past five years, has joined the staff of Firmenich & Co., New York. N. Y., in the capacity of sales representative, as announced by Charles C. Bryan, managing director of the firm. He assumed his

new duties on the first of the year. Mr. Montean holds a degree from Michigan State University and has done graduate work in organic chemistry at Columbia University, University of Michigan and Ohio State University. He is a member of the Salesmen's Association of the American Chemical Industry and other organizations.

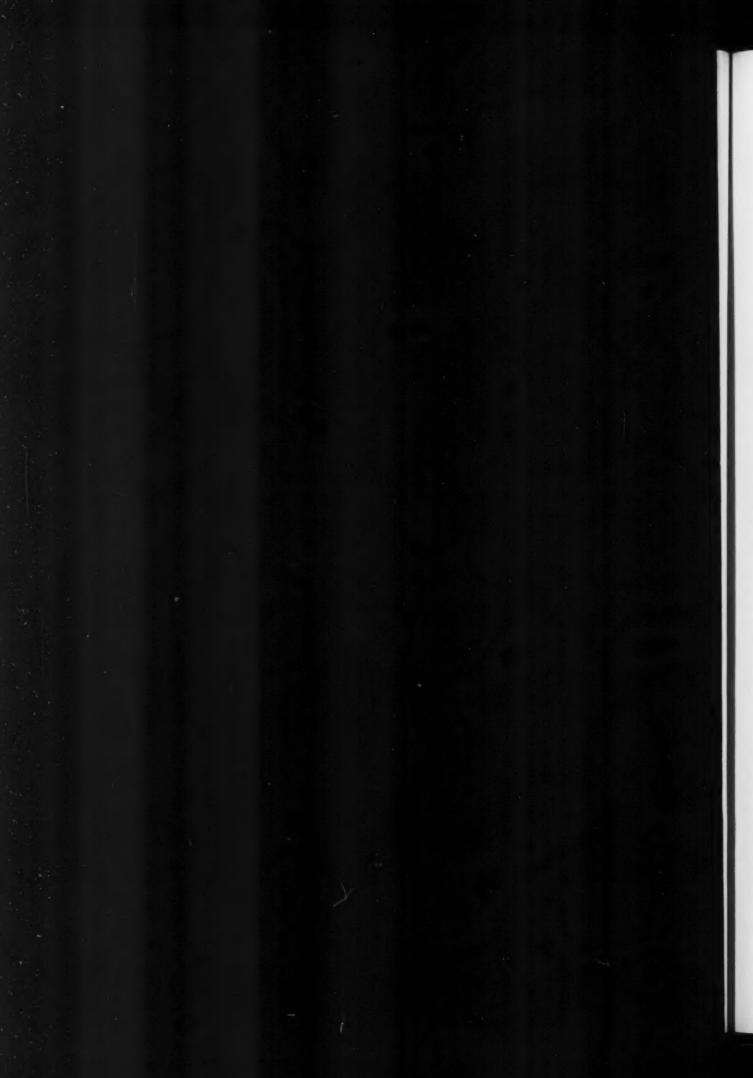
Louis Roure, Head of Roure-Bertrand Fils & Justin Dupont, Dies

Louis Roure, the internationally known managing director of Etablissements Roure-Bertrand Fils & Justin Dupont, Grasse and Agentueil, France, died December 26, 1947. Word was received just as we were going to press. Accordingly a full report of his work and his career will be published in our next issue.

Perfume and Cologne Not Under Canadian Embargo

Alcoholic products such as perfumes and colognes are not included in the list of products under embargo into Canada. Mineral oil and petrolatum have been removed from the embargo list. They may be exported, provided they are in containers of not less than 25 gallons or 250 pounds.





CHEMICA

A Monthly Series for Chemists and Executives of the Solvents and Chemical Consuming Industries

U.S.I. TO MARKET **D&O INSECTICIDES**

of Alcohols, Chemicals Is Result of German **War-Time Exigencies**

Fischer-Tropsch Process Invented in 1931 - Work Began in 1914

When Hitler put his army on wheels, he started down a turnpike where all the service stations were owned by his enemies. Mechani-zation required gasoline, oil and lubricants and the world's petroleum was controlled by the United States, England, Russia and Hol-land. Technical advisors of the Wehrmacht

First of a Series

Because of the numerous questions arising Because of the numerous questions arising from articles in these columns concerning U.S.I.'s marketing of the products of the American version of the Fischer-Tropsch process, U.S.I. Chemical News is publishing a series of articles on various aspects of this subject. The first of these articles describes the history of the synthesis and the men who made it possible.

surveyed all processes which gave promise of

yielding oil in the quantities required.

In the forefront of processes considered was one which came to be known as the Fischer-Tropsch synthesis from two chemists, Franz Fischer and Hans Tropsch. These men, independently and together, had been working since World War I on a scheme for producing hydrocarbon oils and fuel by putting together two gases, hydrogen and carbon monoxide. Even in those days Germany was interested in self-sufficiency and conservation of foreign exchange. Hydrogen and carbon monoxide could be obtained by passing steam over hot coal in the "water-gas" reaction discovered by an American, Thaddeus Lowe 1870. The ample supplies of coal in the Ruhr Valley are well known.

Process Commercially Feasible

In 1931. Fischer was able to announce a commercially feasible process, and a plant was placed in operation in 1936. Production rose steadily, and, by 1940, there were seven large plants operating, and two more were under construction. The total production was in the order of 740,000 tons per year, suffi-cient to keep the Panzers rolling and to oil the bearings of necessary industry.

Fischer Directed Kaiser Wilhelm Institute

The men whose chemical insight made the program possible are two German scientists, Franz Fischer and Hans Tropsch. When World War I broke out, Fischer, the senior

New American Source | Change Effective January 1 Places Widespread U.S.I. Sales and Distribution Facilities at Disposal of Insecticide Firms

U.S.I. Cuts Price of DL-Methionine by 10%

The price of DL-Methionine, one of the amino acids essential for the growth and repair of animal tissue, has been cut 10 per cent by U.S.I., according to a recent announcement. This compound, which is in wide demand for pharmaceutical applications, is also reported to have potential use in manufactured



Free Booklet Available

A 6-page, profusely illus-trated booklet entitled, "So-lox, the General Solvent," is now available free on request from U.S.I. The text describes the use of Solox in shellacs, nitrocellulose lac-quers, chemical manufacture, spirit varnishes, and for many other applications.

Piperonyl Butoxide is Now in Large-Scale Production

G. L. Haskell, president of U. S. Industrial Chemicals, Inc., has announced that effective January 1, the Insecticide Division of its subsidiary, Dodge & Olcott, Inc., will be trans-ferred to U.S.I. and operated thereafter as an integral part of the parent company.

The coordination of U.S.I.'s activities in the insecticide and insectifuge field will continue to be directed by the same personnel.

This organization change, Mr. Haskell said, will enable Dodge & Olcott to concentrate its activities exclusively in the essential oil, flavoring and perfume raw material fields, where it has been a leader for almost 150 years. At the same time, it will place the wide-spread sales and distribution facilities of U.S.I. immediately at the disposal of the insecticide manufacturers in this country.

Safety Prime Consideration

The chemical and entomological research work of Dodge & Olcott in the insecticide field was initiated in 1939. It has been founded from the first on the basic idea MORE that complete safety outranked all other considerations



Constant research has been the keynote of D & O's progressive policy which has resulted in the development of many new insecticides. Beginning January 1, U.S.I. will market D & O insecticides.

January

U.S.I. CHEMICAL NEWS

1948

CONTINUED U.S.I. To

Market D & O Insecticides

insecticide development. The products of this company are free from hazards to man, ani-mals and plants.

Develops New Insecticides

In the beginning, adherence to these high safety standards restricted work at D&O to pyrethrum and rotenone materials. Simultaneously a line of chemical investigation was being conducted at the Mellon Institute by Dr. O. F. Hedenburg under a fellowship provided by the Insecticide Institute of America. After years of patient work, he developed a new class of synthetic organic chemicals, some of which were found to combine a high degree of toxicity against most forms of insect life with an amazing lack of toxicity to warm-blooded animals. In 1943, Dodge & Olcott undertook the

commercial development of Dr. Hedenburg's important basic research and shortly made the first of these chemicals commercially available. This chemical, then known as piperonyl cyclohexanone, is now called piperonyl cyclonene. In 1947, the even more valuable and versatile piperonyl butoxide was brought into large-scale production.

Intensifies Research Program

In 1945, Dr. W. E. Dove, formerly chief, division of insects affecting man and animals, the U. S. Government Bureau of Entomology and Plant Quarantine, joined the organization to take charge of an intensified entomological research program. Because of the fact that these chemicals, in addition to their inherent insecticidal value, display remarkable synergistic behavior with pyrethrum, rotenone, and other insecticide materials, problems of for-mulation and entomological evaluation have been unusually complex and the solution required the teamwork of an unusually competent staff of entomologists, chemists and pathologists working in close cooperation.

Even though recommendations for the commercial use of these chemicals have been consistently conservative, their application and the application of pyrenone concentrates based on various combinations of them with pyrethrum, has expanded at a rate which taxed production. To meet this demand, a major program of plant expansion was initiated and

completed recently.

New Humidity Indicator



A new quick-reading, all-metal humidity indicator is said to provide readings of relative humidity to within 1 per cent. The instrument bears a simplified slide-rule calculator which gives relative humidity readings directly, eliminating the need for tables.

CONTINUED

Fischer-Tropsch

partner of the team, was director of carbonic esearch at the Kaiser Wilhelm Institute at Mulheim

From then on he devoted his efforts entirely to the utilization of coal. He was soon joined by Hans Tropsch, a native of Sudetenland, who had studied under the great Hans Meyer. After working with Fischer for twelve years, Tronsch returned to his native Czechoslovakia to become Director of the Prague Institute for Carbonic Research. Fischer, however, worked alone on the same problem and was the one to announce the commercial success of the process.

TECHNICAL DEVELOPMENTS

Further information on these items may be obtained by writing U.S.I.

A radar process for sterilizing food is said to make canned foods more nutritious and tastier than when sterilized by steam or hot water. (No. 275) U.S.I.

To determine the flexibility of dry paint films a new tester is now being marketed which is de-scribed as consisting of a number of cold-rolled steel rods of varying diameters. (No. 276)

U.S.I. A new insulating plaster is a light density, fire resisting, granular material which forms a smooth plastic mass when mixed with water, the manufacturer states. It is alleged to form a durable insulating blanket which exhibits pronounced sound-absorbing qualities.

(No. 277)

U.S.I. "Non-breakable" bottles made from inert, flexi-ble polyethylene have been announced. They are being used to handle chemicals, cosmetics, body deciderants, and lubricating oil, according to the producers. (No. 278)

For high temperature lubrication, a new silicone oil has been developed which is said to have heat stability up to 500 degrees F., freedom from gumming, and good lubricity at medium to light loadings. (No. 279) U.S.I.

U.S.I.

To match original auto finishes, a new machine has been developed which is said to make it possible for the automotive service man to repaint a car by exactly duplicating the original paint job. The machine can make up any standard factory color, the makers state.

(No. 280)

U.S.I.

To weld "hard-to-weld" metals, a new machine is on the market which is said to weld metals such as aluminum, magnesium, stainless steels, copper alloys, and others.

(No. 281) U.S.I.

A chemical resistant scotch tape, stated to be impervious to acids, alkalis, water, salt water, alcohols, and hydrocarbons, is offered for use in the protection of metal pipes, fillings, and equipment against corrosive tumes and acids.

U.S.I.

A new intermediate for the manufacture of anionic surface active agents by sulfonation has been announced. The sulfonated material possesses excellent wetting and detergent properties, and can be marketed in liquid, drum dried or spray dried form for industrial and household uses.

(No. 283)

To freshen air and counteract undesirable odors, two new units are offered which are claimed to be specially useful in freshening rooms after decorating or illness.

(No. 284)

S. NOUSTRIAL CHEMICALS,

60 EAST 42ND ST., NEW YORK 17, N. Y. (U.S.)



BRANCHES IN ALL PRINCIPAL CITIES

ALCOHOLS!

Butanal (Narmal Butyl Alcohol) Fusel Oil-Refined

Ethanol (Ethyl Alcohol)

Completely Denatured—all regular and anhydrous formulas
Pure—190 proof, C.P. 96%

Absolute
*Super Pyro Anti-treeze *Solax proprietary Solvent

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ACETIC ESTERS

Amyl Acetate Butyl Acetate Ethyl Acetate

OXALIC ESTERS Dibutyl Oxalate Diethyl Oxalate

PHTHALIC ESTERS Diamyl Phthalate Dibutyl Phthalate Diethyl Phthalate

OTHER ESTERS

Diatali Diethyl Carbonate

INTERMEDIATES

Acetoacet-ortho-chloranilide Acetoacet-ortho-toluidide Acetoacet-para-chloranilide

Alpha-acetylbutyrolactone
5 Chloro-2-pentanone
5 Diethylamino-2-pentanone

Ethyl Alpha Oxalgropionate Ethyl Sodium Oxalgretate

Methyl Cyclopropyl Ketone ETHERS

Ethyl Ether Ethyl Ether Absolute - A.C.S.

FEED CONCENTRATES

Riboflavin Concentrates
*Vacatone 40
*Curbay B-G *Curbay Special Liquid

ACETONE Chemically Pure

RESINS

Ester Gums-all types

Congo Gums-raw, fused & esterified
*Aroplaz-alkyds and allied materials

*Aratene—pure phenalics
*Arachem—madified types
Natural Resins—oll standa

OTHER PRODUCTS

Colladions Ethylene Ethylene Glycol Urethan

cellulose Solutions DL-Methionine





Dr. Katz Delivers Paper on Developing Essential Oil Industry

Dr. Alexander Katz delivered a paper on the subject "The Need for the Development of an Essential Oil



Industry in the United States" at the Third Conference on the cultivation of drug and associated economic plants in California, held in the auditorium of the State Building, in Los Angeles, Dec.

Dr. Alexander Katz 2 and 3, under the auspices of the California State Department of Education and the California State Polytechnic College

Francois Camilli Becomes Director of Gerard Danco

of San Luis Obispo.

At a recent stockholders' meeting, Francois Camilli, president and general manager of Camilli, Albert & Laloue, S. A., Grasse, France, was elected to the position of director of Gerard J. Danco, Inc., New York, N. Y.

Givaudan-Delawanna Forms Sindar Corp.

Givaudan-Delawanna, Inc., New York, N. Y., has announced the formation of Sindar Corp., a separate company formed to take over the activities formerly carried out by the Industrial Division of the parent company.

Sindar Corp. is located at 330 West 42 St., New York, N. Y., and has branch offices in Chicago, Los Angeles, Philadelphia, Cincinnati, Detroit, Seattle and Boston, and is represented in Canada by Stuart Brothers, Ltd., of Montreal and Toronto.

Benares Hindu University Celebrates Silver Anniversary

The College of Technology, Benares Hindu University (India), celebrated its Silver Anniversary Dec. 12, 1947. The Honorable Shri B. G. Kher, Premier, Government of Bombay, inaugurated the function. Papers by the late founder and rector of the University, Pt. M. M. Malaviya, and the present vice-chancellor, Prof. Dr. Sir. S. Radhakrishnan (as well as others), highlighted the steady growth and consolidated development

of the various departments of this, the first and best attended, institution, founded to impart technological information. The study of oils, soaps, perfumes and cosmetics is under the direction of the well-known Dr. Sadgopal, D.Sc., F.R.I.C., F.R.H.S., F.C.S.

Minfermet Appointed Representative By Gerard J. Danco

Gerard J. Danco, Inc., New York, N. Y., exclusive agent for Camilli, Albert & Laloue, S. A., Grasse, France, and Etablissements Victor Hasslauer, Paris, France, for the United States, Canada and Mexico, has appointed Minfermet, Ltd., 1461 Union Ave., Montreal, Canada, its representative for Canada.

Gunning and Gunning Represent Payan & Bertrand

Gunning and Gunning, New York, N. Y., has been appointed sole agents in the United States and Canada for



Nelson A. Gunning

Payan & Bertrand, S. A., Grasse, France. Payan & Bertrand is one of the oldest houses in Grasse, having been established in 1854, and specializes in floral and essential oils, absolutes, concretes, balsams and resins.

Gunning and Gunning has been in business since 1922. It operates a plant in Newark, N. J., where it manufactures aromatic chemicals and perfume compounds and deals in essential oils.

A new catalog listing all of its products, as well as those of Payan & Bertrand, is now being printed and will be ready for distribution shortly.

Talc Production, Export, Import at Peak

According to the Bureau of Mines report, the United States produced, imported and exported more talc in 1946 than ever before.

Domestic producers sold 457,066 short tons, valued at \$6,445,344. Imports totaled 18,499 tons, valued at \$400,267, and exports totaled 16,373 tons, worth \$394,799. Exports of finished talcum powders amounted to \$3,517,827. The State of New York continues to lead in talc production.

ADACIOM Elects Officers for 1948

At the annual meeting of the Associated Drug & Chemical Industries of Missouri, Inc., held Dec. 10, 1947, in St. Louis, the following officers were elected: President, Jack Varley; 1st vice-president, Marvin Yates; 2nd vice-president, Neal Draper; 3rd vice-president, O. W. Rash; treasurer, J. Louis Lanz; and secretary, John A. Mueller.

The following were elected as directors: Franc Barada, H. L. Dahm, Ben Donaldson, Charles S. Fox, George C. Irwin, Morton Meyer, Glenn H. O'Neal, A. L. Saeks, I. J. Stanley.

The Association now has a membership of 145 Missouri firms engaged in the drug, cosmetic, industrial chemical and allied industries.

ADCAOM Christmas Party

The Allied Drug and Cosmetic Association of Michigan held its 15th annual Christmas party Dec. 5, at the Hotel Book-Cadillac. The reception started at 6:30 p. m. and ended with dancing until 1 o'clock.

General Chemical Merges

General Chemical Co., New York, N. Y., has merged with its parent company, Allied Chemical & Dye Corp., and hereafter its business will be conducted under the name of: General Chemical Division, Allied Chemical & Dye Corp. No change in management or personnel is involved.

Dr. Guenther Addresses Maryland Chemists

Dr. Ernest Guenther, vice-president and chief chemist of Fritzsche Brothers, Inc., New York, N. Y., was



the guest speaker at a meeting of the Maryland Section of the American Chemical Society held Nov. 21, at Johns Hopkins University, Baltimore. He presented a series of colored motion pictures

Dr. Ernest Guenther on "The Production of Essential Oils in the Western Hemisphere" which included those taken on his most recent trip to Haiti a few months ago.



Jasmin

CONCRETE

A superior product produced by the largest Jasmin flower plantations in the East.



P.O. BOX No. 800 CAIRO, EGYPT. CABLE ADDRESS: JASMINOIL, CAIRO



A. Reddington-Samuels, assistant vice-president in charge of sales of W. J. Bush & Co., (Canada), Ltd., has just returned to Montreal from a trip to London. Last year, he had barely arrived in England for a vacation when M. St. Alphonse was seized with an attack. Mr. Reddington-Samuels took the next plane back. M. St. Alphonse is now well on the path to recovery, and was able to attend a "welcome home" dinner given for Mr. Reddington-Samuels by the sales staff. He was presented with a gold wrist watch.



The entire sales staff of Fritzsche Brothers, Inc., New York, N. Y., including the representatives of its Canadian affiliate, Fritzsche Brothers of Canada, Ltd., participated in the company's annual sales meeting held in New York, Dec. 10, 11 and 12. Shown above are Fritzsche executives in final conference before the opening of the meeting. They are: John H. Montgomery, Fred Leonhardt, Jr., F. H. Leonhardt, Joseph A. Huisking and H. P. Wesemann

Board of Trade Directors and Officers

The New York Board of Trade at its 74th Annual Meeting elected a group of new directors. Among those elected were: B. R. Armour. Heyden Chemical Co.; Stanley I. Clark, Sterling Drug, Inc.; James G. Flanagan, S. B. Penick & Co.; Harold C. Green, L. Sonneborn Sons, Inc.; and Clark L. Rodgers, Owens-Illinois Glass Co.; Fred J. Stock, Chas. Pfizer & Co., Inc., who had been elected during the year, was reelected for a longer term.

Officers elected were: President, Floyd Jefferson, Iselin-Jefferson Co.; Vice-presidents, Harold M. Altshul, Ketchum & Co.; William Van Atten, Dun & Bradstreet; Mortimer Sprague, The Home Insurance Co. Chairman

of the executive committee, Ralph E. Dorland, Dow Chemical Co.; Secretary, Warren L. Baker, Socony-Vacuum Co. Harry J. Carpenter, Guaranty Trust Co., continues as treasurer. Assistant treasurer, Robert B. Magnus, Magnus, Mabee & Reynard, Inc. Edwin Otterbourg, Otterbourg, Steindler, Houston & Rosen, continues as general counsel.

Cletus Gallagher Promoted by California Fruit Growers Exchange

M. L. Chapman, manager of the California Fruit Growers Exchange, Products Department, has announced the promotion of L. Cletus Gallagher to New England district manager, which carries with it the appointment on the executive sales policy committee.

Jacques Riedweg Returns to France

Jacques Reidweg, a director of the firm of Givaudan & Cie. of Paris, has just returned to France, following a two-month visit to the United States. after an absence of several years. Mr. Riedweg, who is thoroughly familiar with the American perfume industry, made a study while here of the new trends in perfumery in America.

During his stay in this country, Mr. Reidweg consulted with the executives of many American perfume companies, particularly those associated with French houses. He also laid the basis for the introduction into the American market, through Givaudan-Delawanna, Inc., of several new Givaudan specialties that are now being used abroad.

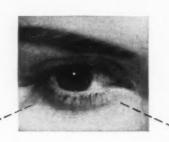


Nearly 300 employees of Fritzsche Brothers, Inc., New York, N. Y., at tended the annual dinner dance held Dec. 13, in the Grand Ballroom of the Hotel New Yorker.

The Dividing Line Between Sale and No Sale



EYE-APPEAL





Which side of the line is your product on?

That important first impression of your product is formed by its appearance. If it has "settled out," lacks even distribution of color and body, women hesitate to buy it. It *looks* like poor quality . . . because it has no "eye appeal."

So why not give your product the "quality look" that sells? Use Kraystay, a new development in vegetable stabilizers. With Kraystay, you're sure of even distribution of color and body that lasts until the product is all used.

In varying proportions, this remarkable new vegetable product will show unusual stabilizing, emulsifying, thickening, gelling or suspending effects. Adaptable to many foods and

pharmaceuticals of medium or low acidity.

Find out more about Kraystay. Call or write today, stating the nature of your product. Or, if you wish to submit your formula, Kraft technicians will be glad to assist you in the application of Kraystay to it. Kraft Foods Company, Department AP-1, 500 Peshtigo Court, Chicago 90, Illinois.



GELOSE FROM THE SEA! The clear, pure vegetable gelose used in the manufacture of Kraystay comes from these minute fronds of carrageen (edible Irish moss). Taken from the clean, cold ocean floor, they form the basis of this consistently efficient stabilizer whose uniform high quality is guarded by modern, scientific laboratory controls.

KRAYSTAY MADE BY

A NEW DEVELOPMENT IN VEGETABLE STABILIZERS

Luis de Hoyos Acts On Mexican Import Duties

Luis de Hoyos, vice-president and secretary of the Synfleur Scientific Laboratories, Inc., Monticello, N. Y.,

has just returned from Mexico, where he undertook discussions in connection with the high duties imposed by the Mexican gov-High ernment. duties on perfume oils were recently inaugurated by the Mexican gov-



ernment. Mr. de Hoyos, for 12 years mayor of Monticello and technical advisor to the North American Delegation of the Inter-American Congress of Municipalities in Chile, is also honorary member of the Mexican government's important Department of Turismo.

Insecticide Division of D & O To U. S. Industrial Chemicals

G. L. Haskell, president of U. S. Industrial Chemicals, Inc., New York,

N. Y., has announced the transfer of the Insecticide Division of its subsidiary, Dodge & Olcott, Inc., to U.S.I. It will hereafter operate as an integral part of the parent company.

The coordination of U.S.I.'s activities in the insecticide and insectifuge field will continue to be directed by R. B. Stoddard. J. A. Rodda will be in charge of sales and entomological research and development will continue under the direction of Dr. W. E. Dove. The Fairfield (Md.) Entomological Laboratory will be headed by L. C. McAllister, Jr.

New Address for Aromatics Division, General Drug Co.

The new address of the Aromatics Division, General Drug Co., is 644 Pacific St., Bkyn. 17, N. Y. The telephone number is Sterling 3-3830.

Dodge & Olcott Opens San Francisco Office

Dodge & Olcott, Inc., New York, N. Y., has opened a San Francisco office at 564 Market St. The office is managed by C. H. Bryson, and is the sales headquarters for Northern California, Oregon, Washington and British Columbia.

Innis, Speiden Holds Meeting

A three-day sales conference was held last month by Innis, Speiden & Co., New York, N. Y., at the New



York State Chamber of Commerce, the Downtown Athletic Club and at the company's Jersey City factory. Among the new products discussed were Adsorbol, Isco Gloss, Isco Algin, Isco Nordpol,

Isco Vegetable Paste and Isco Vat

Chairman of the sales conference was P. L. Frost, manager of sales. The following men led discussions in their particular division of products: H. S. Cottrell, F. Grilli, T. G. Flavelle, J. E. Wickstead, E. A. Smith, D. S. Cushman, M. H. Quarte, F. T. Shanahan, H. Price and C. H. Berle.

Similar meetings are planned for the future so that present products and future developments can be thoroughly reviewed.

STEARATE FOR DRUGS AND COSMETICS

- 1 Backed by the longest commercial Stearate manufacturing experience in America . . M. W Parsons offer you this new product as the finest Zinc Stearate that can be made.
- 2 Years of research have made possible a particularly white product
- 3. Special production methods over more than a quarter of a century have made it ODORLESS
- 4 It will not develop offensive odors even it kept for a long period
- 5. It enables your face powder to retain the same odor that you give it.
- 6. A smooth, light, fluffy texture has been finally and definitely achieved.
- 7 Tested independently it shows the following results: ARSENIC (Gutzeit and Spectrographic Test). Not Found. LEAD (Spectrographic Determination) ... 1.7 parts per million.
- 8. The reputation and record of M. W. Parsons assure you of Uniformity in all shipments.

We also manufacture a superlative grade of PLYMOUTH MAGNESIUM STEARATE

M. W. PARSONS

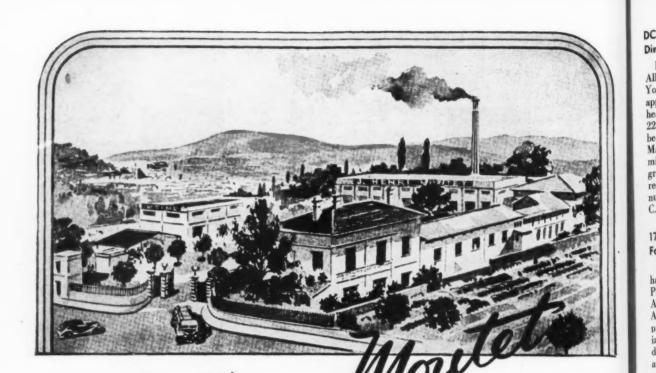
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for the

SOAP · PERFUMERY · COSMETIC & ALLIED TRADES

Laboratories, Distilleries & Head Offices: GRASSE · A. M. FRANCE



DCAT Annual

Fred Stock, Drug, Chemical and Allied Trades Section of the New York Board of Trade chairman, has appointed the following chairmen to head the active committees for the 22nd Annual Dinner of the DCAT to be held at the Waldorf-Astoria, March 11: dinner arrangements committee, Lloyd I. Volckening; program committee, Harold M. Altshul; reception committee, Robert B. Magnus; and publicity committee, Harold C. Green.

17th Packaging Exposition Set For Cleveland, April 26-30

The American Management Assn. has announced that its 17th annual Packaging Exposition will be held April 26-30, 1948, in the Public Auditorium at Cleveland, Ohio. Approximately 200 exhibitors will utilize 100,000 square feet to display developments in packaging, packing and shipping machinery, equipment, materials, etc. Arrangements for attendance at the exposition are being made through the exposition manage-

ment's office at 350 Fifth Ave., New York, N. Y.

William Fischer Marks 40th Year with MM&R

On Nov. 15, William Fischer, sales manager of Magnus, Mabee & Reynard, Inc., New York, N. Y., marked



William Fischer

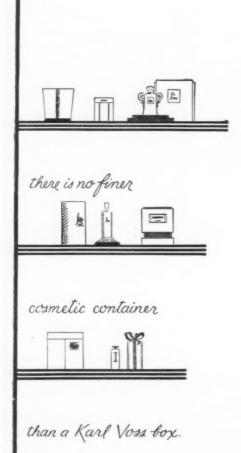
his 40th anniversary with the firm. Mr. Fischer started with MM&R as an office boy and progressed through the laboratory, bookkeeping department, etc., to selling. His first territory was New England.

Upon the death of Percy C. Magnus, Sr., he came into the home office to assist P. C. Magnus, the newly elected president of the company. After five years of inside work he returned to the road, working in the Southwest territory and Canada. In 1929, he returned to the home office once more, this time as general sales manager.

BIMS General Committee Announced

In accordance with a resolution passed at a special meeting of the General Committee on Jan. 11, 1945, the BIMS has selected a new General Committee which took charge Jan. 1, 1948. It is as follows: A. H. Bergmann, Oxzyn Sales Co.; A. C. Burgund, Carr-Lowrey Glass Co.; S. H. Corkran, E. N. Rowell Co., A. H. Wirz, Inc.; C. W. Darr; Paul A. Dunkel, Paul A. Dunkel & Co., Inc.; J. A. Ewald, Allied Products, Inc.: P. L. Forsman, C. H. Forsman Co. (Chairman Executive Committee); I. S. Goodwin, Yardley & Co., Inc.; H. G. Griffiths, Pennsylvania Drug Co. (Member of Executive Committee); J. A. Leyden, Hampden Glazed Paper & Card Co. (Member of Executive Committee); F. J. Lueders, George Lueders & Co.; S. L. Mayham, The Toilet Goods Assn. (Member of Executive Committee and Treasurer); K. L. Patterson, Stanco, Inc.; M. F. Schultes, The Hewitt Soap Co., Inc. (Member of the Executive Committee and General Chairman); and W. K. Sheffield, New England Collapsible Tube Co.







Natural and Aromatic Raw Materials Essential Oils

for

Perfumery .

Cosmetics

Soap .

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154-158 West 18th Street New York, N. Y.

Grasse · Paris · London · Bevrouth

Manufacturers of Quality Raw Materials For Perfumery For Over 100 Years

Givaudan-Delawanna Opens Boston Office

R. M. Stevenson, sales manager of Givaudan-Delawanna, Inc., New York, N. Y., has announced the opening of a branch office in Boston, at 140 Federal St. It will be under the management of George H. Blake.

Mr. Blake has been with Givaudan since 1926, and has been a member of the sales staff in Chicago, St. Louis and New York. He will continue sales and service to many of the New England firms to whom he was selling from New York.

At the same time, the New York sales staff will be strengthened by the addition of Arthur C. Gogarty, who will handle the New York City and lower Connecticut formerly taken care of by Mr. Blake. Mr. Gogarty has been with Givaudan since 1941. He spent three years during the war in the Merchant Marine.

W. Armfelt Appointed by Guerlain

W. Armfelt has been appointed by Guerlain, Inc., New York, N. Y., as Mid-West and Chicago representative. He will work under the direction of the company's sales manager, E. K. Stoyanoff.

DCAT Mid-Winter Luncheon Meeting

The mid-winter luncheon meeting of the Drug, Chemical and Allied Trades Section of the New York Board of Trade will be held Jan. 27, at the Hotel Astor, New York, N. Y.

Chemical Market Research Assn.—Washington Meeting

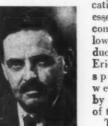
The Chemical Market Research Assn. is holding its next meeting at the Mayflower Hotel, Washington, D. C., Jan. 22. This meeting promises to be of outstanding interest.

Vance Roeder Manages Breck's New York Sales Office

W. Vance Roeder has been made district manager and director of the newly opened sales office of John H. Breck, Inc. The address of the office is 230 Fifth Ave., New York, N. Y.

Essential Oil Association Adopts Additional Standards

The Essential Oil Association, meeting Dec. 9, at the Hotel Mc-Alpin, adopted standards and specifi-



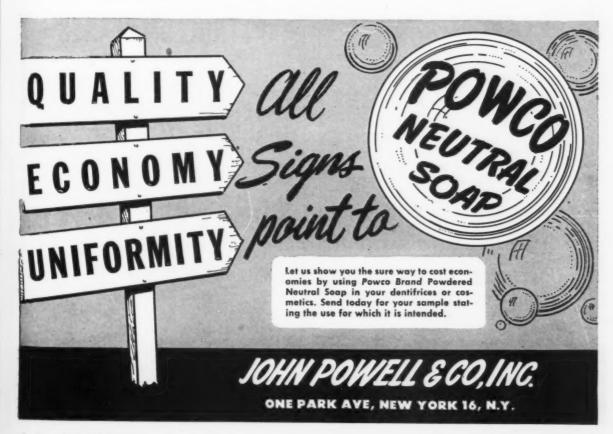
Dr. Eric Kunz

cations for eight essential oils and compounds. Following an introduction by Dr. Eric Kunz, the specifications were presented by the members of the committee.

The products covered were: Citronella oil--

Java type, citronella oil—Ceylon type, oil of ginger, copaiba oil, citral pure, geranyl acetate, citronellol, and geraniol

Members of the committee were: Alfonso Fiore, Givaudan-Delawanna, Inc.; Arthur Downey, Magnus, Mabee & Reynard, Inc.; Edward Langenau, Fritzsche Brothers, Inc.; Ross LeBaron Daggett, George Lueders & Co.; and Albert Warren, Dodge & Olcott, Inc. Ray Schlotterer presided.



Finest FROM FAR AND NEAR

Now, for the first time since the war's end, the Citrus and Allied Essential Oils Company once again offers importations of the finest calibre oils from Italy . . . together with best quality oils from the West Indies and its well-known line of distinctive products from its Brooklyn plant.

CHOOSE FROM THIS VARIED LIST . . .

• Imported from Palermo Italy—
PURE HAND PRESSED LEMON
PURE HAND PRESSED ORANGE
PURE HAND PRESSED MANDARIN
SWEET ALMOND OIL—
ITALIAN "SCACCIANOCE"
BRAND

Unquestionably the finest oil obtainable.

BERGAMOT OIL

ORIGINAL CONSORZIO 25 LB. PACKAGE

A Pure Product Guaranteed by Law...

Citrus and Allied Essential Oils Co. is Official Stock Distributor for Consorzio del Bergamotto Reggio Calabria.

- From our factory in Puerto Plata, Dominican Republic – West Indies –
 - BITTER ORANGE OIL—H.P.N.F. (Largest Producers in the World)

LIMES DISTILLED
(Scientifically Processed High Citral

● From our Brooklyn Plant—
TERPENELESS, SESQUI-TERPENELESS AND CONCENTRATED
CITRUS OILS

(Manufactured only in glass at low vacuum)

LEMON—ORANGE—BERGAMOT
—LIMES

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BEESWAX

U. S. P. Pure Sunbleached U. S. P. Pure Yellow Refined

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MICROCRYSTALLINE PETROLEUM WAXES

SPECIAL WAX BLENDS

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Main Office and Refinery: Sayville, N. Y.

Phone: Sayville 400

Ask for Samples, Prices and Technical Data



M. P. Yates, J. H. Hille, G. Keller and Miss R. J. Williams enjoy a cocktail at the party given by Schimmel & Co., Inc., New York, N. Y., at the conclusion of its recent annual sales meeting. The meeting, held Dec. 9 and 10, was attended by the sales and technical staffs. Out-of-town members were impressed by the new and greatly enlarged quarters of the firm.



H. R. M. Gordon, who has earned an enviable reputation as a package consultant in the cosmetic and allied industries, is now associated with the S. K. Smith Co. in the Chicago office.

Dr. Bogert Joins Evans Research Corp.

Dr. Marston Bogert has joined Evans Research & Development Corp., New York, N. Y., as senior scientific adviser. Dr. Bogert is emeritus professor of chemistry at Columbia University. During World War I, he was director of the Chemical Warfare Service. During World War II, he was with the War Production Board.

Eaton-Clark Becomes Eaton Chemical and Dystuff Co.

Eaton-Clark Co., Detroit, Mich., with Canadian plants at Windsor and Toronto, has changed its corporate name to Eaton Chemical and Dystuff Co.



The F. Ritter exhibition at the Pacific Chemican Exhibition in San Francisco, during the week of Oct. 20, 1947. Here, materials were produced, on a laboratory scale, which attracted wide interest from chemists and scholars. Also on exhibition were flavoring and perfume materials which were manufactured in the company's Los Angeles plant.

Guerlain-Nips Decision Upheld

The Supreme Court of the United States has upheld the New York Supreme Court in preventing F. W. Woolworth from selling Guerlain perfumes for less than the minimum fair trade contract price. The Guerlain perfume was packaged by Nips.

IMPROVE THE QUALITY OF YOUR FLAVOR

BY USING NORTHWESTERN AMYL

BUTYRATE AND ETHYL BUTYRATE

WHEN THEY ARE CALLED FOR IN

YOUR FORMULAE, WE HAVE MANUFACTURED MORE THAN HALF OF THE

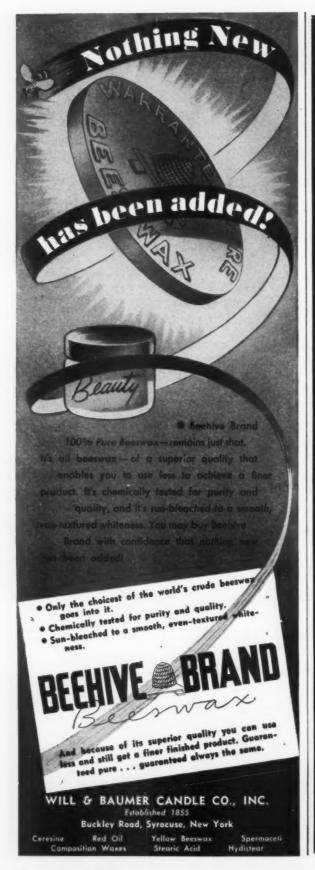
AMYL BUTYRATE AND ETHYL BUTYRATE

SOLD IN THIS COUNTRY FOR MANY YEARS

THE NORTHWESTERN CHEMICAL CO.

INCORPORATED 1882

WAUWATOSA, WISCONSIN



KOMMON/ SCENTS!

Investigations are replacing Baseball as America's National Pastime. The rules have been changed a little. One balk and you're out.

There are even grades in the new "sport." A bush league investigation begun in Sacramento, for example, even played Washington. (That was the first time Washington has been Big League since Walter Johnson threw his fast one.)

'There are major differences, too. In baseball the umpires don't play on either side.

To be sure, there are many kinds of Investigations. There's the political kind, f'rinstance, wherein Senators and Movie Writers exchange words in an atmosphere of mutual Contempt,

Then, there's the Home Relief type of quiz, conducted locally. Here the object, apparently, is to minimize rumors of national inflation by proving that even on the dole some people can afford a mink coat.

Always interesting is the investigation of prize fighting. The recent Jake La Motta-Billy Fox fight, according to critics, seemed more a promotion by Arthur Murray than Mike Jacobs. Sol Strauss, the matchmaker, wound up in a bigger waltz than the Viennese composer of the same name.

But our favorite person for investigations is Howard Hughes. His associates provided more love interest than his movies.

And Hughes himself was sharper than his Senatorial interrogators. Senator Brewster, for one, thought he ran into a Hughes Constellation with all four props spinning.

It would be less than gallant to observe that investigations flourish just before an election. So, we'll be less than gallant: They do.

No telling what'll be investigated next. Export business is so tough for the Cosmetic Industry, for example, one conservative manufacturer confided that he'd even take orders from Moscow.

George Fiedler,



KELTON Cosmetic Company

230 West 17th Street New York 11, N. Y. 763 So. Los Angeles St. Los Angeles 14, Calif.

Private Label Manufacturers Exclusively Covered by Product Liability Insurance

National Adhesives Presents Labeling Course at McKesson & Robbins

A special course in labeling operations was presented recently before packaging and purchasing department personnel of McKesson & Robbins, Inc., Bridgeport, Conn., by National Adhesives. Fred W. Bradley, manager, New England Division, and William Sederlund, technical service manager, were the principal speakers.

Francis Reid Promoted

Francis J. Reid has been elected executive vice-president of the New York Quinine & Chemical Works, Inc. Mr. Reid had been with the sales division of the company, recently purchased by S. B. Penick & Co., New York, N. Y.

Chemical Exposition Indicates Industrial Growth

Evidence of a rapid industrial growth reaching several years ahead was reported by exhibitors at the 21st Exposition of Chemical Industries on the basis of a heavy volume of orders, inquiries and requests for information. The Exposition closed Dec. 6, 1947, after a full week's run in

Grand Central Palace, New York, N. Y.

Dow Uses Scented Ink In Special Issue

An innovation in printing took place in the holiday issue of *Dow Diamond*, house organ of The Dow Chemical Co., Midland, Mich., which was printed in its entirety with scented printing ink. This issue carried a feature article on aromatic chemicals and their rapidly expanding uses.

Perfuming the printed page is not entirely new but this seems to be the first time that aromatic printing ink has been used to produce an alluring fragrance throughout an entire magazine.

Obituary

Albert V. Henissart

Albert V. Henissart, vice-president in charge of sales of the Antoine Chiris Co., Inc., New York, N. Y., died suddenly of a heart attack on Dec. 25, 1947, at his home in Hollis, L. I., at the age of 56.

Mr. Henissart was born in London, England, and was educated at L'Ecole Polytechnique in Paris, and at the Sorbonne. During World War I, he served in the Intelligence Service of the British Army, with headquarters in Paris.

He was active in business in Europe, and was for many years export manager for the Paris branch of Associated Merchandising Corp. In 1923, he came to this country and was for many years associated with the Antoine Chiris Co. in the sales department. He was well known throughout the trade and his travels brought him in contact with the leading firms in the industry. His election as vice-president in charge of sales had been announced shortly before his death.

Mr. Henissart was a member of the Grand Orient Lodge of Masons in France. He leaves his wife, Eva; his son, Paul; and a daughter, Martha.

Charles W. Speed

Charles W. Speed, treasurer and a director of S. B. Penick & Co., New York, N. Y., died Dec. 28. Mr. Speed joined the firm in 1917. As a result of poor health he retired about two years ago, but had remained an officer of the company and had continued his deep interest in the affairs of the industry and his many friends associated with it. He was 66 years of age.

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MARKET REPORT

Alkali Prices Stable

THE recovery in essential oil prices that took place in November has been tempered somewhat by year-end influences. A keener desire on the part of some dealers to reduce inventories resulted in fairly substantial price losses in several articles.

Behind this reversal, however, was an undercurrent of considerable strength. Trade observers regarded the setback as only temporary especially in view of the persistent downward trend that featured the market over the greater part of the year. Essential oil prices and a great many aromatic chemicals were declining in price at a time when virtually all commodities moved higher. Much optimism regarding 1948 is also based on the fact that perfumers and toiletry goods manufacturers have succeeded in working off a good part of their inventories. Although buyers may prefer to purchase sparingly in the immediate months ahead, the heavy inventory position of consumers is believed to have disappeared.

Several of the basic materials will move upward in price at the start of the new year. The petroleum industry has announced advances on several products, namely: isopropyl alcohol, isopropyl acetate, isopropyl ether, and methyl ethyl ketone. Isopropyl alcohol prices will be increased by 4 to 4½ cents a gallon while methyl ethyl ketone will be ad-

vanced by a cent a pound.

SACCHARIN PRICES RISE

Saccharin prices were moved up 10 cents per pound over the past month. It marked the first change to take place in this article in several years. Spot prices on soluble granular material in quantities of 1,000 pounds were minimum at \$1.40 to \$1.90 per pound. Contract prices will be moved up to this level January 1. The soluble of insoluble powder for spot delivery was \$1.45 per pound and effective January 1 that also will become the new contract price.

Other items registering advances over the final month of the year included menthol, metallic stearates, and secondary butyl alcohol. Boric acid crystals both commercial and

USP will be advanced \$20 per ton January 1.

Producer prices on thymol remained entirely nominal in the absence of spot offerings. Makers have a substantial volume of backlog orders on hand and there appears to be little hope for any relief in the generally tight supply position for several months. Limited amounts were occasionally offered by dealers at premiums over manufacturers schedules. Stearic acid and red oil registered gains in the early part of the period under review.

The advance in the basic raw material, argols, contrasted in some measure with sharp reductions in tartaric acid and cream of tartar. The advance in the raw material had.

however, set in several weeks prior to the decline in the tartrates. Even at its current level, the cost of argols is below what it was when the former tartrate schedule had been established.

The high rate of glycerin consumption reflects the broad industrial activity throughout the country since its uses are so widely diversified. The article used in explosives, Cellophane, paints, and rubber also enjoys a wide demand in toiletries, cosmetics, confections, and various other closely related industries. Release of official figures for October revealed that stocks of crude glycerin declined 1,648,000 pounds in that month during which period production hit an all-time record level for any one month of 20,689,000 pounds. Stocks of crude material fell from 50,354,000 pounds at the end of September to 48,706,000 pounds (absolute basis) on October 31, 1947.

ALKALI PRICES STABLE

Cost of most tonnage chemicals is expected to remain stable over the coming year. Alkali manufacturers have been renewing 1948 contracts on the basis of the prices in force over the final quarter of the year. Prices of alkalies have increased 20 per cent since the war, which is regarded as only slight by comparison with the rise in prices of many other basic materials. Barring any further increases in wages, freight rates, and other costs, alkali manufacturers hope to be able to keep prices at current levels.

Benzol from which various aromatic chemicals are derived, promises to remain in short supply over the new year. Reconstruction of the large styrene plant in Texas City, will according to reports, be completed sometime in June. Prior to the disaster back in April over a million gallons of benzol a month was required for the manufac-

ture of styrene.

After declining to \$8.90 per pound, menthol scored a sharp advance and at the close of the period under review, the article was quoted at \$9.25 with reports indicating that the item would continue to advance. Although stocks here are believed large, the supply is said to be in strong hands.

An arrival of 875 bags of gum karaya from Bombay, India, failed to have any influence on spot prices in the face of the continued firm reports coming out of the primary center, and the general uncertainty that continues to exist regarding replacements. No unusual activity was noted in gum arabic. More inquiry developed for ribbon tragacanth gum. Because of seasonal influences, however, individual purchases were confined to small lots. Myrrh and Sumatra benzoin show signs of strengthening. Cheap lots of benzoin have been fairly well absorbed and replacement costs are reported higher.

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